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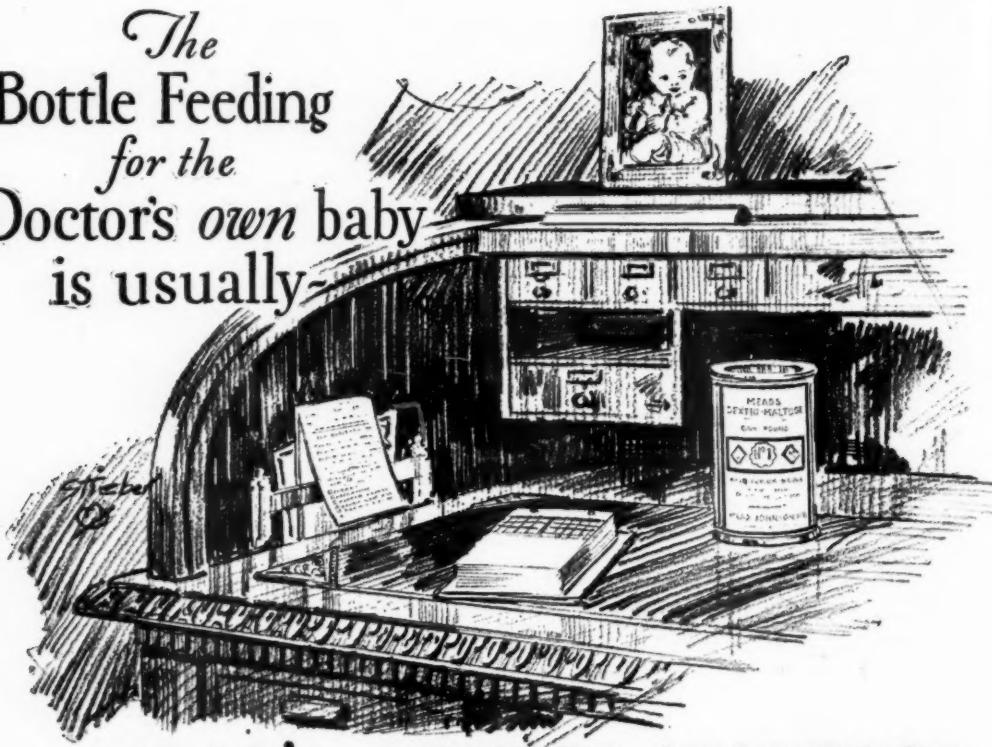
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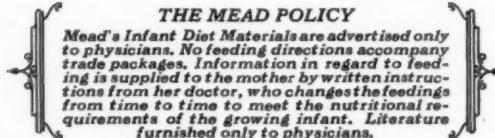


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VOL. XI.

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THE PHYSICIAN AND THE NEUROSES*

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Duluth, Minnesota

UP to one hundred years ago the practice of medicine was still so closely linked with superstition and blind faith that to our present view it must have closely resembled the quackery of today. It is true that an occasional Pare, Vesalius, Hunter or Sydenham strove to place it on a plane above the level of the mediocre; yet the slow diffusion of knowledge through provincialism and the lack of adequate communication militated against coördinated progress. From the standpoint of popular demand the average of education of the laity was so low that it offered little direct influence in stimulating scientific development. The treatment of disease was a mad jumble of astrology, medicine, religion, polypharmacy and witchcraft, and with few exceptions the medical man who commanded the greatest popular recognition was the one endowed with the greatest charm of salesmanship and bombast, and not necessarily scientific attainment.

The pendulum swung backward in the nineteenth century, and with the development of its accessory sciences, such as chemistry, pathology, bacteriology, surgery, biochemistry and electrophysics, medicine developed an objective and materialistic phase, and brought forth a generation of physicians who became, as a result of their training, shortsighted as to the functional side of disease, so that an existence was almost denied to any disease or train of symptoms unless manifested by some objective evidence of its presence. It is not uncommon, even in recent times, to witness a tendency to dismiss patients who complain of the so-called "functional neuroses" as being the victims of their imaginative

figment, and not worthy of the expenditure of the time of the consultant.

It is unfortunate that the medical profession has so long neglected the intelligent consideration of this large segment of patients, comprising in a greater or lesser measure fifty per cent of medical practice. The fact that these patients do not reveal demonstrable organic or anatomic change makes our obligation and responsibility none the less keen, and their relative neglect has no doubt been a great factor in the fostering of quackery and unorthodox medicine. Psychology and psychopathology until recently were only new subjects, and their understanding limited to a few of the intellectual elite and an occasional psychiatrist.

Even today the basis of mental hygiene is inadequately taught in our schools, and the importance of hereditary factors, varying temperaments, and the inter-relationship between the conscious and unconscious, as influencing human suffering, are only meagerly stressed.

The physician, with his ability to rule out organic disease and his experience and contact with humanity which makes him by necessity, if not by choice, to a certain degree a psychologist, should be able to accomplish infinitely more for the neurotic if his efforts are directed along proper channels, than the various rituals of the chiropractor, faith healer and the Christian Scientist. With the ignorant, of course, one sometimes meets an obstacle that is well nigh insuperable, and with them the force of the argument rather than its logic is of the greater importance.

That we are on the threshold presently of a more intelligent treatment of the neuroses I think is due to the leavening process of evolution in medicine, which is keeping pace with

*President's address before the Northern Minnesota Medical Association, Fergus Falls, Minn., Aug. 20, 1928.

the evolutionary trend in all other phases of life. The influences bringing about the emphasis on their importance is probably due to several factors: namely, the recognition by the medical profession that there is more to the healing of the sick than pure material objectivity; that the development of the more intelligent of the unorthodox crafts is due to neglect of this portion of medical practice; and lastly, that the laity are now taking an interest in the study of the more abstract side of life, and demanding a more enlightened profession.

It takes many years of experience before the medical man can properly evaluate all the little vagaries of the human mind and its influences on physical and mental comfort, and with many, through their inherent practical nature, it may always be impossible of achievement. The recent graduate, in spite of due precaution in his education, is ill fitted for this type of practice. The medical student today knows little of the theory of production and the treatment of the neuroses, largely because of the emphasis in his curriculum on the more material side of medicine, to the neglect of the more abstract psychical study. A perusal of any text-book on medicine will indicate that the functional side of disease is relegated to a few succinct paragraphs at the end of the book, and at best given over to consideration of the major neuroses and psychoses, as dementia praecox, manic depressive insanity and hysteria, which comprise only a small part as far as numerical influence is concerned in the subject of functional medicine. No doubt the teaching of these abstract sciences is difficult also because of the absence of receptivity on the part of the student, who is more interested in the objective side of medicine. Pedagogy gives us a hint as to the difficulty encountered in teaching these sciences to the young, as it is generally understood that the development of rational thinking must begin in early childhood with object lessons, in early youth and adolescence with the more rational sciences, and that it is only at the age of twenty or thereafter that it is possible for the average student to understand the more abstract studies, such as logic, ethics, psychology, etc. The average clinic patient used for teaching purposes, and the patients in the university hospital, are not likely to involve functional problems because of lack of interest and space, and the education of the student in

the care of the patient probably lies largely in the field of extramural or so-called "domiciliary" teaching, as at present practised in a few of our universities.

For many years we have been considering humanity with a uniform scale of evaluation, without due regard to the varying hereditary and environmental influences which play upon the organisms. The human nervous system is biologically relatively a recent development, and has no counterpart in our progenitors in the animal kingdom. It is a well known biological fact that at times of stress the more recently developed faculties are the first to exhibit evidences of strain. All human beings, regardless of temperament, are potentially neurotic if the stress of fatigue or intoxication is sufficient to bring the emotional and instinctive side of life to the foreground. In the neurotic these symptoms develop relatively more easily, so that in some people they are constantly on exhibition. Fetterman states a neurosis is an exaggerated response to an adverse physical or social stimulus, and Wechsler has stated that every normal person is in part neurotic, and every neurotic much normal. The neuroses are a trait complex; a personality, not a disease.

The influences which bear on life and personality may be regarded as a triangle, one side of which represents the hereditary influence, another the environmental, and the third the training and education, humanity experiences. One might say that heredity forms the clay of existence, and environment supplies the mould, but our experiences supply the color and pattern.

The hereditary tendency to the neuroses is well known to everyone, and is well borne out in some of the races in which inbreeding is common. As an illustration of the opposite tendency for people of a more hardy nervous stock to propagate a less nervous progeny, one may mention the people of Labrador, among whom Dr. Grenfell states he has never seen an instance of neurosis. In a climate such as Labrador affords, with all the laborious efforts and hardships necessarily endured, a nervous stock could hardly exist. The true colonist, explorer and pioneer is not easily a victim to nervous influence, but that even the hardiest may break if the strain is sufficiently great is exemplified through the harrowing experiences of isolated and starving people when the instinct of self

preservation becomes foremost. The hereditary influence on the greater facility, with which the production of symptoms is brought about in the neurotic, no doubt is the main factor in predicating the high emotional state and the reduced censorship of the intelligence and will. This weakened side of the triangle implies weakness on the other two sides, and environmental factors, which only strengthen the adaptability of the non-neurotic, render the nervous person frequent opportunities for an exhibition of his failure of adjustment. It is because of the latter feature that the patient so frequently exhibits an arbitrariness of will and a selfishness of interest, because it is easier for him, and probably also more satisfying to his pride, to have the environment changed to suit his circumstances rather than that he constantly adjust himself—a process in which he usually fails. This failure of adjustment is one of the chief reasons for dissatisfaction with one's station in life, one's occupational, marital and social responsibility. This tyranny is one of the chief reasons for the statement quoted from Dr. Mayo that "the patient is miserable but the relatives suffer."

It is to be remembered that the essential difference between the neurasthenic and the normal person is largely one of personality and behavioristic alteration, and that he differs chiefly in his irrational and unnatural response to outside stimuli. One of the outstanding characteristics of the neurotic is his fatigability—the well known tired feeling—leading to a lowering of the energy that is conducive to lassitude, and a foe to happiness. The fatigue need not necessarily be from physical causes, but may be due to undue anxiety of the nervous type; to senseless tossing about during the night because of real or fancied worries; to an unhappy choice of occupation; worry over marital infelicity, and so on.

Associated with this fatigue there is almost invariably more or less depression—an outstanding characteristic of the disease. The patient is no longer filled with the joy of living, and becomes self-centered, introspective, self-analytic, and prone to become dull to the sensations of excitement or amusement. He ceases to care, and becomes anhedonistic. With fatigue, fear in the broad sense is a corollary. By fear we do not imply merely the more limited physical aspects of the term, but its broadest psychologic

application. It may involve the fear of death, dishonor, disease, or self depreciation. It includes most of the anxieties and phobias and obsessions, in many instances of which there is a localization of mental projection in some tract of the body—either in the cardiovascular, the genito-urinary, or the gastro-intestinal. It is this somatic localization of symptoms that alters the symptomatology of the neurasthenic. The fear lest the consultant does not give the proper recognition to his complaint, and because of the falling of his constantly reiterated symptoms on deaf ears, leads the patient to the indulgence in hyperbole in the description of his symptoms. He is likely to use superlatives to make the situation more impressive. Lest he forget the various angles of his complaint he often records them in minutest detail, and reads them off from his little piece of paper one by one.

The picture of the neurasthenic, however, is not as doleful and dismal as one would think, and many find their escape through the safety valve of genius and talent, so that their helter-skelter psychic processes become uni-directional, and lead to some of the sublimest efforts of humanity. The victim of a neurosis is frequently a playwright, a poet, an actor, a musician or an artist, who is much to be envied. To many, the example of such celebrities as Kreisler, Leginska, Shaw or Galli Curci, as compared to the dominant physical types, such as Jack Dempsey, George Washington or the Duke of Wellington, is an inspiring illustration.

The neurotic, unless a victim of his baser emotions, is usually a superior citizens; his habits often exemplary. His fatigability prevents indulgence in the excesses of vice and dissipation, and late hours are not conducive to comfort. His fear of symptoms precludes an indulgence in vices such as drinking, excessive smoking and carousing, and abstinence from their enjoyment may be construed as an evidence not so much of strength as of weakness and effort at self preservation. His meticulousness in detail and routine makes him a conscientious parent, or child, and a faithful employe.

The physician who attempts to treat the neuroses must be primarily a good diagnostician. Neuroses which seem to have localizing symptoms in the cardiovascular or respiratory apparatus can usually be diagnosed with considerable certainty, and with little equivocation. The pres-

ent understanding of cardiac diagnosis and the rather clean-cut clinical picture of angina pectoris, as well as electrocardiographic diagnosis, lead to rather definite opinions as to the presence or absence of organic disease.

The roentgenologic examination is of similar value in the diagnosis of tuberculosis in the phthisiophage.

In a consideration of the gastro-intestinal complaint, the situation is not so simple. In retrospect, of course, it is easy to view the distressing results of hasty surgery, particularly in the zone of the gallbladder and appendix, and oftentimes with repeated operations for adhesions, ovarian disease, and what-not, which not infrequently only add their increment to the increase of the patient's invalidism. On the other hand, it is equally devastating to one's professional pride if a later examination, usually by some fellow practitioner, uncovers an objective organic condition behind the haze of the functional smoke screen.

The neurotic's treatment must always be prefaced by a most careful and detailed examination, so that in the physician's mind there is no question as to the exactness of his diagnosis. This is the basis for the assurance given the patient of the benignity of his condition, and unless it can be made emphatic enough, it is likely to leave the patient in still further doubt and fear as to the ultimate possibility. Many patients date an aggravation of their symptoms to the uncertainty or error of a previous diagnosis, or equivocation or hesitancy as to the presence of organic disease. The responsibility of the physician is great, as can be best realized by the subsequent consultant who views the patient's increasing and manifold distress and anguish.

It is difficult sometimes, even for the most experienced and case-hardened campaigner, to differentiate organic from functional conditions. Obviously, all organic disease begins with functional alteration or physiologic perversion, which may or may not be apparent with our present diagnostic limitations. Likewise, many conditions cause symptoms closely resembling a neurosis, particularly hyperthyroidism, incipient tuberculosis, anemia, hypoadrenalinism, etc., which require the most careful study. Dr. Plummer

one time said that, in the diagnosis of Graves' disease, it is important primarily to know the thyroid and secondarily to know mankind; otherwise the diagnosis, prognosis and treatment are greatly complicated.

The physician must also have a sympathetic understanding of the patient's temperament and the symptoms he suffers. It is impossible, of course, for every physician to experience a neurosis himself which will serve as fertile soil for its appreciation, but an extensive experience and understanding of humanity and its diversified nervous and mental characteristics is of great value. Riklin states that the treatment of the neuroses should not be attempted by rough and untrained hands, lest he either force the patient into greater despondency or into the hands of the charlatan.

For the simpler neuroses it is not necessary to be a trained psychiatrist. The problems are relatively simple, and a modified type of psychoanalysis will reveal the various influences which wreck the patient's morale. A basic understanding of psychologic processes is quite important. Influences of heredity and environmental factors (sociologic, occupational and marital difficulties), all must be truly evaluated, and the patient must be told not only of the fundamental makeup and disposition which is the basis for his neurosis, but all the environmental factors which operate must be brought into the picture, so that the patient thoroughly understands the mode of production of his symptoms.

Since so many neurotics are well endowed mentally, the physician should, if possible, school himself in the appreciation of a broad culture, in order to establish a basis for a rapport that inspires the patient with a respect for his universal intelligence. All the minutiae of medical art and skill must be brought into play so that no loophole may be left to try the consultant's vulnerability. Every angle of the patient's life must be analyzed and met by suitable approach.

If one once develops a certain tact in ferreting out the various problems the patient encounters, without any semblance of prying or inquisitiveness, a picture often reveals itself which is as fascinating as the elucidation of any diagnosis in objective medicine.

LIPIODOL INJECTION IN THE DIAGNOSIS OF STERILITY*

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THE introduction of the Rubin's test for inflation of the fallopian tubes in the diagnosis of sterility was undoubtedly one of the greatest advances ever made in gynecological diagnosis. This test paved the way for further advances in the technical diagnosis of sterility in women. Injection of the uterus and fallopian tubes with lipiodol has brought out many new possibilities in gynecological diagnosis. The iodized oil not only tells whether the tubes are patent or not, but also, if they are so, where the obstruction is located.

As an injection material, many preparations have been used by various men. Ott prefers a suspension of charcoal; Cory used collargol; Kennedy, 10 per cent sodium bromid; and Tusson a bismuth preparation. Preparations of iodin, however, have apparently met with the greatest favor. The French brought forth lipiodol, a definite chemical mixture of 30 to 40 per cent iodin and poppy seed oil. The American preparation is iodipin—iodin in combination with other vegetable oils. I have used both of the iodin preparations, but prefer the former as it seems to flow more easily. The lipiodol, as has been pointed out by Forestier and Sicard, is a clear, transparent, yellow, oily fluid; if it becomes brown, it should be discarded, as this indicates the presence of free iodin, which will undoubtedly cause some trouble. I have always used fresh preparations, which have been kept out of the sunlight and in an aluminum container.

There has been considerable discussion in the literature as to whether these iodized oil preparations may cause peritoneal irritation. So far I have found no reports of cases exhibiting untoward results after injection of lipiodol, provided, of course, that the proper judgment was observed in the selection of cases. One writer has very well shown that the oil is relatively soon absorbed by the peritoneum, and that, as far as fluoroscopic evidence is concerned, it entirely disappears. In my own cases I have found no evidence of peritoneal irritation, except in

one case, and in this instance there was undoubtedly a subacute salpingitis present. The patient had moderate pain for twelve hours but no rise in temperature. In one of my cases in which the tubes were found patent, a laparotomy for an acute appendicitis was necessary two weeks after the injection. At the time of operation the patency of the tubes was confirmed; and there were no adhesions and no evidence of peritoneal irritation or oil to be found. One must observe the same care in pre-injection diagnosis, however, as is essential in using the Rubin's inflation method: namely, injection should not be used where there is an acute or subacute salpingitis, or pelvic peritonitis present. If one observes these precautions, I believe the iodized oil may be useful without any fear of bad results.

Technic.—The technic as laid down by Jarcho, in my opinion, is rather more rigid than is necessary, but probably one's technic depends

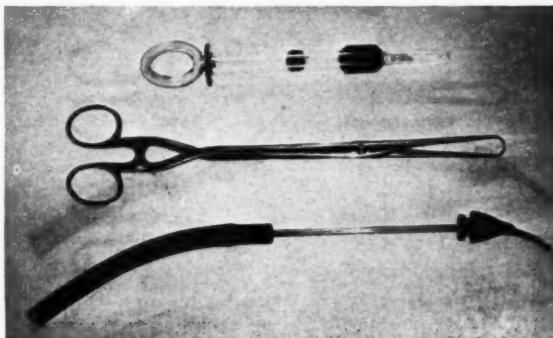


Fig. 1. Diagram of the instruments used.

somewhat upon one's clientele. Some insist that all cases should be hospitalized, but in my practice I have never found this necessary, all patients being taken care of in the office. I have followed this same course when using the Rubin's test, and in several hundred selected cases I have not yet found cause for regret. The patient is put in the lithotomy position. A tray containing sterile bivalve speculum, bullet forceps, glass syringe, a rubber tip, post-urethral cannula with perforations on the side and a rather stiff rubber

*Read before the annual meeting of the Western Surgical Association, Omaha, Nebraska, Dec. 8, 1927.



Fig. 2. Mrs. O. D. P., age 26 years, married 7 years, 1 child 5 years of age. Comes in because of sterility. Bimanual examination negative. Lipiodol injection shows both tubes to be patent.

Fig. 3. Mrs. L. R. W., age 28 years, married 6 years, 1 child 3 years of age. Endocervicitis. Lipiodol injection shows patent tubes and lipiodol dripping from the tubes.

Fig. 4. Mrs. V. M., 34 years of age, married 7 years, husband has lues. Lipiodol injection indicates perfectly normal tubes.



Fig. 5. Mrs. H. F., age 27 years, married 5 years. Lues and epilepsy. Lipiodol injection shows both tubes open and spilling of lipiodol in pelvis.

Fig. 6. Mrs. F. R. C., age 28 years, married 6 years, 1 child 3 years of age. Seen by me postpartum, at which time patient was running a temperature and showing evidences of a right salpingitis. Complains of sterility. Lipiodol injection shows both tubes open. This case brings out interesting point in diagnosis which the lipiodol injection clears.

Fig. 7. Miss N. N., age 25 years, single. Admits Neisserian infection 3 years ago. Tubes inflated to determine whether open or not. Both tubes patent. Note lipiodol coming out at the end of the tubes.

tube about four to six inches long on the other end, are the only instruments necessary. First, introduce the bivalve speculum; slowly grasp the anterior lip of the cervix with volsella forceps; insert the cannula up to the rubber flange and then inject the oil. There are a few "tips" which might be mentioned:

1. If one slowly grasps the anterior lip of the cervix without noise, the patient will experience little or no pain, probably because of the absence of psychic influence.

2. The rubber flange on the cannula should be firm enough and yet loose enough that it may be adjusted back and forth on the cannula so as

to form a rather firm plug when pressed against the cervix.

3. A rubber tubing of stiff quality attached to the other end of the cannula will greatly help the assistant to adjust the syringe and inject the oil, as well as prevent leakage.

4. The lipiodol flows easier if it is warmed immediately before using. Undue pressure should not be used at any time in injecting the oil, unless it happens to be a case where this is indicated. As a matter of fact, with the glass syringe described it is impossible to get too much pressure.

5. The patient may experience slight pain



Fig. 8. Mrs. C. H. W., age 25 years, married 2 years. Complains of sterility. Uterus small and in normal position. Adnexa apparently normal, but bimanual manipulation causes pain. Lipiodol injection shows both tubes apparently closed.

Fig. 9. Mrs. D. J. H., age 29 years, married 1½ years; menstruation always irregular with a tendency to run-over (sometimes as long as 3 months, even before marriage). Complains of sterility. Lipiodol injection reveals a defect in the uterine outline, either a myoma or a pregnancy. Right tube is not filled but the left tube fills easily. Further examination reveals this to be a pregnancy. No bad results from the injection; expected delivery January, 1928.

Fig. 10. Mrs. C. L., age 38 years, married 12 years. Complains of sterility. Lipiodol injection reveals a peculiar shadow which makes one very suspicious of a bicornate uterus. However, not able to fully substantiate this diagnosis. Both tubes are open. Question is, is this a large uterus or a bicornate uterus. Unable to determine bimanually.



Fig. 11. Mrs. N. J. S., age 34 years, 1 child 6 years of age. Complains of sterility. Lipiodol injection on April 14, 1927, shows the tubes open. Patient menstruated on July 31, 1927. She is now pregnant. This is one of several cases which have become pregnant the month following injection of lipiodol. This phenomenon has also been noted in doing the Rubin's inflation test.

Fig. 12. Mrs. E. G., age 27 years, 1 child 3 years of age. Pelvic infection 2 years ago with mass felt in left adnexa. Complains of sterility. Lipiodol injection shows the tubes closed.

Fig. 13. Mrs. H. M. K., age 31 years, married 4 years. Complains of sterility. Lipiodol injection to determine patency of tubes and to demonstrate the effect on tubes as result of Baldy-Webster operation. Picture shows tubes to be open, but hair-like filling of proximal portion with apparent spasm of right tube.

when the body of the uterus is filled with oil, but if one will rest about half a minute the pain disappears, and then one may proceed with the filling. The pain is undoubtedly due to a slight cramping of the muscles of the uterus, and with relaxation the oil flows out through the tubes freely. This was pointed out by Randall in his article.

6. The use of the Potter-Bucky diaphragm

will give better pictures, but good ones can be obtained by the use of a lead plate under the film.

7. Fifteen to 20 c.c. of the iodized oil is the usual amount injected. Randall uses 10 c.c. in the ordinary case, while Jarcho uses 15 c.c. As no local symptoms are present from an overflow, I have found that 20 c.c. is about the average amount.

Interpretation of the contrast picture obtained



Fig. 14. Mrs. A. S., age 18 years, married 10 months. History very suggestive of venereal infection 9 months ago. First lipiodol injection shows tubes closed—not much pressure used on injection. See Fig. 15, second picture shows both tubes patent.



Fig. 15.

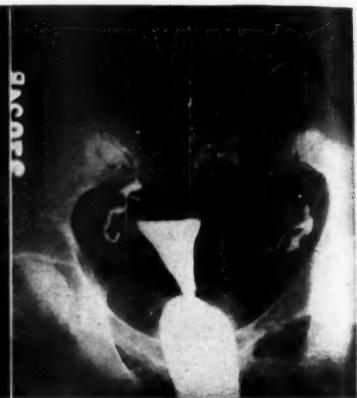


Fig. 16. Mrs. R. H. E., age 32 years, married 7 years, 2 children 5 and 3 years, respectively. Bimanual examination reveals what appears to be a small fibroid in the upper fornix of the uterus. Lipiodol injection reveals a deformity in this area.



Fig. 17. Mrs. E. A., age 23 years, married 18 months. Complains of sterility. First injection unsatisfactory. See Fig. 18, second injection, using considerable force, with sudden pain as if something had let loose, gives a picture which shows one tube open and the other one closed. No reaction after the injection.



Fig. 18.



Fig. 19. Mrs. O. E. S., age 25 years. Complains of sterility. Picture shows no uterine filling but lipiodol in vault of vagina. Imperfect technic.

requires considerable study. Tumors causing distortion of the interior of the uterus, as submucous myomas, or an early pregnancy may distort the uterine filling. Also, the size and position of the uterus may distort the shadow to some extent. A bicornate uterus may be demonstrated by this method. The point of occlusion of the fallopian tubes is more easily shown in view of the fact that one can tell whether the occlusion is in the proximal or distal portion, or involving the fimbrium. The site of obstruction, of course, indicates whether a plastic operation on the tube will be of benefit or not; those in

the fimbriated end offer more hope than those in the proximal portion. Another difficulty in interpretation of the picture is to determine the calibre of the fallopian tubes, since often there is only a small hair line from the uterus to the fimbriated end. May not this be the type of tube that is often found at operation? It is very hard and firm, and the patient has little likelihood of becoming pregnant, even if the tube is patent.

Peristalsis in the tube has been observed by Rubin and Bendick, but of what diagnostic value this may be as regards sterility remains to be seen.

Unfortunately, the use of lipiodol alone does not in any way outline other pelvic tumors. Stern and Arens, using the combination of lipiodol and trans-peritoneal insufflation, have offered greater possibilities in a more accurate diagnosis of pelvic conditions.

Pregnancy subsequent to injection of the tubes has been observed in a number of cases. This same phenomenon, however, has been noted after the inflation method of Rubin.

The contrast pictures, also, are of value in checking up on the history, as when the patient admits a previous pelvic operation but is unaware of exactly what was done at time of operation relative to surgery on the tubes.

The pictures presented bring out various facts, from which one may draw the following conclusions:

Lipiodol injection of the uterus and tubes is of infinite value in the diagnosis of patency of the tubes and the presence of submucous tumors of the uterus.

Early pregnancy may, with the careful injection of lipiodol, be demonstrated. This method should not be used universally but only when definite indications for differential diagnosis are present.

The injection of lipiodol should be a valuable aid in the diagnosis of congenital deformity of the uterus.

This method is of distinct value in locating the site of obstruction in the fallopian tubes and indicating the possibilities of correction and treatment as regards sterility.

As a means of diagnosis this method may prove even superior to Rubin's inflation method because it not only shows the patency of the tubes but also reveals the pathological status if one is present.

Lipiodol injection is of great benefit in de-

termining the solution of problems which are presented when the patient says: "I have had a pelvic operation, but I do not know what for or what has been removed." She returns to you to

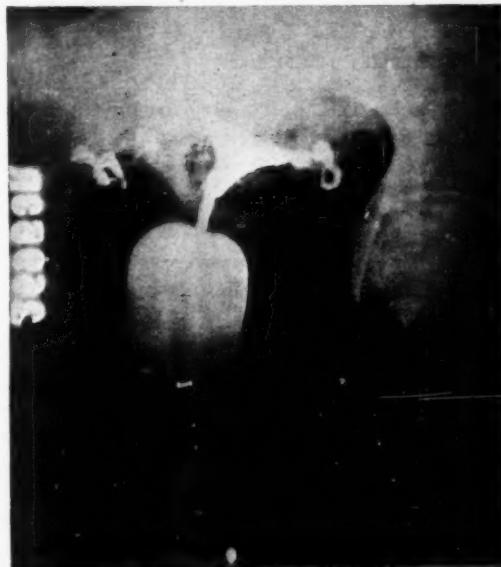


Fig. 20. Mrs. E. R., age 28 years, 1 child 6 years of age. Comes because of sterility. Note deformities of tube; are they spasm or "blow-outs" in the tubal wall?

find out whether she can become pregnant.

Lipiodol is not only a diagnostic aid in determining the patency of the tubes, but also of other allied pelvic conditions.

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THE ONWARD MARCH OF MEDICINE*

E. KLAIVENESS, A.B., PH.D., M.D.

Monticello, Minnesota

"And step by step, since time began,
I see the steady gain of man."

Whittier—*The Chapel of the Hermit.*

"Progress, man's distinctive mark alone,
Not God's, and not the beasts: God is, they are;
Man partly is and wholly hopes to be."

R. Browning—*A Death in the Desert.*

IT is always and everywhere a great honor in the life of any person to have been chosen by his own confrères and peers to assume the leadership for a set period and be the titular head of the society or organization that represents his special profession or occupation in life. But when such honor for a second time is bestowed upon an individual, under different circumstances and in another locality, every normal minded being must feel grateful beyond words that good will, recognition and a fraternal spirit still prevail. And so I have the rare privilege as well as pleasure of addressing myself for the second time during a career of more than twenty-five years of unbroken medical membership to a group of my colleagues banded together in the interest of our profession in this society. In 1910 when I was president of the Seventh District Medical Society of South Dakota I was a resident of and practiced my profession at Sioux Falls, South Dakota, and quite naturally my presidential address of that year had the colorings of a city practitioner. Now, some eighteen years later, I find myself for the last ten or eleven years a resident of the great state of Minnesota and a practitioner of medicine in a rural community; thus I have been afforded an opportunity to personally observe and to learn the differences in the life of both a city and rural medical man. Under these widely different circumstances, personally observed and experienced, I propose tonight to submit my private opinions about the life of a country practitioner, and inasmuch as all of our members share in the same fate of practicing their profession in villages and country districts I cherish the hope

that my remarks may prove both timely and correct. It appears to be quite the thing for officers of medical societies in the cities and even for a president of the American Medical Association to write articles upon or to offer some gratuitous advice about the deplorable medical conditions found to exist in many rural communities all over our great land and the alleged crying need for medical service. The solutions offered for remedying this condition do not hit the nail on the head, and hence I deem it expedient and in the best interests of the thus afflicted rural communities that some concrete facts be assembled and on behalf of the country practitioners themselves be presented both to our public and the above referred to misinformed advisors within our own profession.

Before I do so, however, I beg your indulgence long enough to review the almost incredibly rapid advances made in the science of medicine since my last presidential address or during the last eighteen years; it must of necessity be a hurried sketch because a detailed description of the many improvements in diagnosis and therapy made during these eighteen years would completely transcend any reasonable limitation of the scope of my address.

To begin with let me remind you of the discovery of radium and its introduction into our medical armamentarium as a valuable remedy in malignancy of whatever nature. When our early expectations of prompt and complete relief did not always take place, additional experimental studies in roentgenology brought forth the use of deep x-rays produced by large machines of immense voltage. Such an equipment runs into thousands of dollars; hence is not readily available to country doctors; in fact, is found only in the metropolitan cities and there only in the large hospitals. On the other hand, due to our wonderfully improved transportation system by rail and air, radium can be rented and shipped anywhere.

An outstanding discovery both in physiology and therapy was made a few years ago by Dr. Banting of Toronto, Canada, when he was able

*President's address to the members of Wright County Medical Society at its meeting, October 18, 1928, Buffalo, Minnesota.

to isolate the active principle secreted by the islands of Langerhans of the pancreas and thus give to the world a powerful remedy, insulin, for the control and treatment of diabetes mellitus.

Again and as recently as 1926, we were profoundly happy to learn of the work of Drs. Minot and Murphy of Harvard University upon the beneficial effects in pernicious anemia of a diet rich in liver. As a result of further studies they have succeeded in isolating from livers the active principle in extract form, fully as efficacious as raw liver. The scientific concentrated studies on the two largest glands in our body, so happy in results, brings to my mind the further fact that organotherapy as a most efficient means of treating many pathological conditions, and endocrinology as an important branch of a well rounded out medical curriculum, have become fully established during these same years.

Still further inroads in our battle against disease were made by the Norwegian doctor, K. E. Birkhaug, who, in 1927, succeeded in producing an antitoxic serum for intramuscular treatment of erysipelas, and by the Austrian physician, Professor Wagner Jauregg, who by his malaria treatment of general paresis has given to this large group of sufferers a most encouraging ray of hope.

Side by side with these real advances I deem it appropriate to also emphasize the greater exactness in our diagnostic work, secured by such means as a reliable blood pressure apparatus, tests for basal metabolism and alkalinity, blood chemistry, and in the special branches of medicine, to-wit, ophthalmology and urology respectively, by a good tonometer and likewise a good cystoscope. These tests and examinations, added to the many others already fully accepted and practiced, have led the doctors in even smaller cities to combine into groups in which the maintenance of a good laboratory and the employment of a competent technician has become a self-evident necessity in order that the patients of any such group shall be impressively imbued with the superiority of the city consultant over the family consultant in the country or village. And the picture is not yet complete; indeed, during the last seven or eight years a wonderful revival of physiotherapy has taken place, no doubt in a great measure helped along by the missionary representatives of electrical manufacturing houses, and as a result of their

successful selling campaign we find the doctors' offices filled with complex machinery, all of which are operated by some form of electric energy, whether it be an *x*-ray machine, diathermy apparatus, ultra-violet and infra-red lamps, sinusoidal, faradic or galvanic apparatuses. To the doctor who fully understands the modus operandi of his electrical equipment and knows its limitations as well as indications there can be no question about its value, therapeutically speaking; but the doctor who does not possess this requisite knowledge and nevertheless parted with his money for the installation of this variegated machinery when in a trance under the influence of said representative will awaken to his sorrow and to the realization that over and above all machinery invented by human mind, yes, over and above all *x*-rays, ultra-violet rays and infrared rays we shall still demand a goodly amount of brain rays clustered together in a focus of knowledge. Again we find our city colleagues having the better of the argument because many hospitals in the cities now have a separate physiotherapy department supervised and managed by a fully competent and trained medical man; hence no necessity exists for the city practitioner to invest money in physiotherapy equipment.

A review of the past eighteen years and their significance to every practitioner of medicine wherever located would not be complete if it were confined solely to medical improvements in diagnosis and therapy; these same years stand out in the pages of history as transcending any other similar period since the dawn of man, not only in social relationships, but also culturally, politically and in the field of transportation; besides we have experienced and lived through the greatest war in all history, the world combat of 1914 to 1918.

What Ibsen in one of his dramas faintly alluded to and described as music in the air has become a reality since the invention of the radio, and what a blessing and gift to humanity and to all country dwellers in particular; by a mere twist of the dial the most lonely frontier family can enjoy the most exquisite operas or symphony concerts, heretofore only available to the inhabitants of our largest cities; or said family may listen to lectures on educational subjects or health and agricultural matters, in brief, whatever may be of interest to the listener, who by means of the radio, irrespective of distance, is

brought back to communion with humanity at large and its pulsating life. Now we may truthfully say that distances as regards sound waves have been reduced ad infinitum by wireless telegraphy and radio. The various races and peoples of this planet are being gradually drawn together into one large family. The brotherhood of man has ceased to be a perfunctory utterance from the pulpits, but has been promoted by radio, wireless telegraphy, and lastly, but not the least, by airships and dirigibles; indeed, travel by air is getting to be quite common, and the next ten years will undoubtedly witness such steady increase in flying and such preference for travel by air that emergency calls to doctors will be responded to in airships. What the automobile has done in reducing distances by land and as a result thereof a decline in merchant establishments in smaller towns with attendant smaller stocks to choose from, will be felt many times more when the airship has been further developed in perfection and safety. Not only the country merchants but the country doctors, save those who are truly on a parity with their city colleagues in skill, diagnostic acumen and knowledge, will suffer. When that day shall have come, and in my humble opinion it is not very far away, I certainly shall sympathize with those country doctors who have been content in the past to serve as nurses to their clients or as middlemen for hospitals in all localities, cities or villages, other than in their own town; for such men the future stability of a medical practice in rural communities does not look at all promising.

It still remains for me to point out some extraordinary changes in our professional, political and social life, such as the enactment by Congress in 1912 of the Harrison law and in 1919 of the National prohibition law, operative since January, 1920. I have no knowledge of any other country where the license issued to a doctor of medicine for practicing his profession has been later on curtailed by legislative enactments and the issuance of sublicenses became necessary as in our country in its efforts to regulate narcotics and liquors. Besides subjecting the doctors to a lot of governmental rules and time-robbing inspections the less we say about these fruitless efforts the better. Suffice it to say that from a moral viewpoint our people are getting deeper and deeper into the mire while utter disregard for laws in general is spreading amongst

young and old alike. Since the termination of the world war we have heard and read a great deal more about birth control, and it appears that regardless of opposition from certain church organizations this subject must be given serious consideration because of present economic conditions. Everywhere in the world the human fabric is breaking down as a result of the financial misery experienced since the world war. To further ease the hungry masses with something more tangible than birth control Soviet Russia has gone the full length of the road and indeed cut loose from all restraining church influences when it promulgated a law as early as 1917 and later (in 1920) made more specific about legalizing abortion which upon proper showing is performed gratuitously in all hospitals owned and operated by the Soviet republics of Russia. Pondering upon these sociological conditions and viewing them in a broader sense one can not help but be reminded of and believe in the revival of the old Roman cry for "Panem et Circenses"; the rights of humanity have been asserted amongst all races and under all climes; no one fancies a reduction to financial slavery by reason of supporting a large family, not even for the glory of God as used to be said. While the doctor both in the country and in the city is beset with requests for birth control and abortion (in our country still unlawful) we do at times encounter other requests indicative of the urge to live and to enjoy; I refer to rejuvenation in both men and women. As a result of insistent demands upon the medical profession for giving lustre to these old, burnt-out lamps we have learned of various surgical procedures aimed at restoring potency to these human victims of pre-senility. Steinach of Vienna, a professor of physiology, was, I believe, the first doctor to take up this hopeless battle against nature by advocating a surgical procedure which consists in cutting through the excretory ducts of the sexual glands, and later a Russian doctor, Voronoff, has proposed another method, to wit, transplanting the thyroid glands. I do not care to go into details about either method because I most heartily agree with professor Tandler of Vienna that rejuvenation operations represent nothing but financial operations and hence are objectionable to every honest self-respecting medical man.

Such then is the composite picture that I feel you must contemplate and analyze with a critical

mind before you can submit a positive and intelligent answer to the question of what the future holds in its lap for country practitioners; and when you have carefully weighed the many changes enumerated by me I trust you will have no difficulty in reaching a convincing conclusion along the lines that I shall now present. To begin with let us start out with premises that are agreed to everywhere. The farmers of our country constitute the nation's backbone, and agriculture occupies a position as the largest basic industry in our republic. It is equally axiomatic that doctors wherever located receive the bulk of their income from patients generally spoken of as belonging to the middle class of our social strata, and certainly when normal prosperity prevails in the agricultural industry our farmers constitute a most admirable clientele for a doctor. In spite of these facts readily agreed to, it is reported that a large number of rural communities all over this country are at present deprived of steady medical service because the doctors are flocking to the cities. And why? Simply because it requires a goodly sum of money to set up and maintain a doctor's office in a rural community if the follower of the arts and sciences of medicine with the present day requirements to accurate diagnosis shall be successful in overcoming the competition of his city colleagues. The efforts to solve this dilemma by presenting the rural communities with graduates in medicine of an inferior training are hopelessly misdirected and an insult to the intelligence of our farmers. This will be realized when we but remember how distances are constantly being diminished by automobiles and airships, making it possible for any one not satisfied or convinced that his rural consultant possesses all the knowledge and equipment that will vouchsafe him the best possible treatment, to leave his home doctor and in a few hours present himself at a clinic or hospital in one of the neighboring cities, where it is presumed that he will receive the benefits of said requirements. Here then is the crux of the whole situation, namely, the ease and rapidity with which sick folks from the country can travel and become beneficiaries of well manned and equipped clinics and hospitals in the cities. The ease with which young doctors can open an office in the city with a minimum of money outlay and necessary equipment simply aggravates the situation. To counteract this condition as at pres-

ent developed and to draw a sufficient number of competent graduates in medicine to locations in the country, all that is necessary is to provide working facilities in the country similar to those now found in the cities; a rather simple solution of the whole problem. Let us remember, however, that if hospitals are good for city doctors and city people they are equally good for country doctors and country people. City people through various church organizations or civic groups have seen to it that the paramount Christian duty in a civilized country is complied with through the operation and maintenance of a sincerely good Samaritan spirit displayed in institutions we call hospitals. To do likewise in the country resolves itself into a financial question, pure and simple. If our farmers desire to maintain medical service in their respective communities they must be willing to furnish working facilities that will attract medical men or else the consequences will be as already complained of, either no doctor at all or at best one that functions as a nurse. Happily in our state the groundwork has already been attended to by our legislature when in 1913 it enacted into law, chapter 392, authority for the commissioners of a county to build, operate and maintain a county hospital, provided the people of the county at an announced election decided in favor of such expenditures. Besides securing these benefits to the whole county from public funds I shall not fail to emphasize that smaller communities can do equally well by fostering a community spirit that will grow strong enough to take concrete form in the shape of a community hospital of which every resident is a stockholder and partner. Given the stability of a hospital in a county either through public funds or private funds raised amongst the residents of a particular community within a county, I venture to say that any such county and community will never lack competent medical service. The individual representatives of our profession in any such county and community may from time to time vary somewhat in minor degrees, but broadly speaking and as a general run they will measure up favorably with the best of city physicians because through their hospital association and work they receive daily a stimulus to render the best possible service to their fellow men. I feel safe in predicting that any well trained medical man, located in the country, with modern medical equipment

available, will continue to enjoy his work in the country, and will take care to evidence that he has grasped the full meaning of Mr. Lowell's words, that:

"New occasions teach new duties,
Time makes ancient good uncouth,
They must upward still and onward,
Who would keep abreast of truth."

Such a practitioner of medicine need fear nothing of the future, regardless of where located.

And now in closing my review and my remarks may I also be permitted to say that I am profoundly grateful for the interest shown by the members of our society in our meetings, which have been well attended even when the weather and road conditions have been far from good. The object of our coming together at regular intervals is not solely for reviews of medical subject matter, but much more for a conscious purpose of learning to know each other better and by continuation of such association to create a truly fraternal spirit which will induce us to work together in harmony for the glory of our profession and with a single eye to rendering our very best service to our patients; for, be it said, only by such conduct can we retain and enhance

the influence in our respective communities to which a united medical profession is justly entitled; besides each individual member of our organization will prosper because his attainments are recognized by his profession, and his work is spoken well of by the laity. Any country doctor who possesses both the training and equipment herein referred to, and who in addition thereto has so governed his life that he enjoys the good will of both his colleagues in the profession and of his patients in his community can well feel content with a life of usefulness in the country and may very fittingly say with Charles Guthrie:

"I live to hail that season by gifted ones foretold,
When men shall live by reason and not alone for
gold,
When man to man united and every wrong thing
righted,
The whole world shall be lighted as Eden was
of old.
I live for those who love me, for those who know
me true,
For the Heaven which smiles above me and
awaits my spirit, too;
For the cause that lacks assistance, for the wrong
that needs resistance,
For the future in the distance, and the good that
I can do."

THE PRECURSOR OF VITAMIN D: ERGOSTEROL

Following the discovery that foods may be made antirachitic by irradiation with ultraviolet light, it was shown that the substance which is activated by the rays is ergosterol. A precursor to vitamin D had thus become established. Activated ergosterol was shown to be a hundred thousand times as effective from the standpoint of its effects on rachitic animals, as cod liver oil. This irradiated ergosterol needs careful standardization and evaluation in terms of curative potency, because an excessive dose may cause "hypermineralization" in the blood in the normal as well as the rachitic infant. The usual dose in infants for cure thus far has been given in the form of oil solutions containing the equivalent of from 2.5 to 5 mg. of irradiated ergosterol. Evidence has been presented which strengthens the assumption that only a molecular structure such as that possessed by ergosterol enables a sterol to be photochemically converted into vitamin D, and confirms the view that ergosterol is the specific parent substance of vitamin D. Fortunately, there need be no limitations to its availability for therapeutic use if this is finally established on a sound basis. (Jour. A. M. A., October 13, 1928, p. 1110.)

ALFRED ERNEST GEORGE HALL

Another notorious example of the quack psychologist of the quasi-medical type and who bids fair to rival the redoubtable Orlando Edgar Miller is that of Alfred Ernest George Hall. Although he claims to hold degrees from several institutions, including the University of London, he is not an M.D.; he has never been graduated by any reputable medical school, nor has he ever been licensed to practice medicine in the United States or Canada. He poses as holding important offices in various organizations, some of which, it is opined, have no existence. He has a long record of quackish activity, claiming to be a specialist of London, Paris, Geneva and Vienna and giving discourses on sex subjects. His latest venture was the establishment of an "annual summer school" of the American Academy of Psychological Research at Richmond, Ind., where he delivered unscientific lectures on sexual subjects. This organization is one that has been brought into existence by a motley group of fadists, fakers or quacks and shows the close relationship between the quack psychology scheme, and various physicians and chiropractors, Abrams and Koch disciples and other individuals. (Jour. A. M. A., October 13, 1928, p. 1125.)

AN UNUSUAL TYPE OF LYMPHOCYTE REACTION*

EDGAR T. HERRMANN, M.D.
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MUCH of the apparently new and curious in the field of disease resolves itself upon careful study into the already known, and unusual interpretations of medical data should never be accepted unless they have passed the muster of a sharp, critical analysis. Yet there are times when the pattern of factual evidence does not fit clearly into any well recognized picture, when in fact a forced fitting may result in prognostic or

blood or in the tissue; it is usually supposed that their function is connected in some way with their quantity in the circulation." Experimental studies of lymphatic reaction have, as yet, yielded only meager results. Clinically, a mass of data exists, particularly with respect to lymphocyte response in infection.

Figure 1 illustrates certain types of such reaction. The normal values represented in this

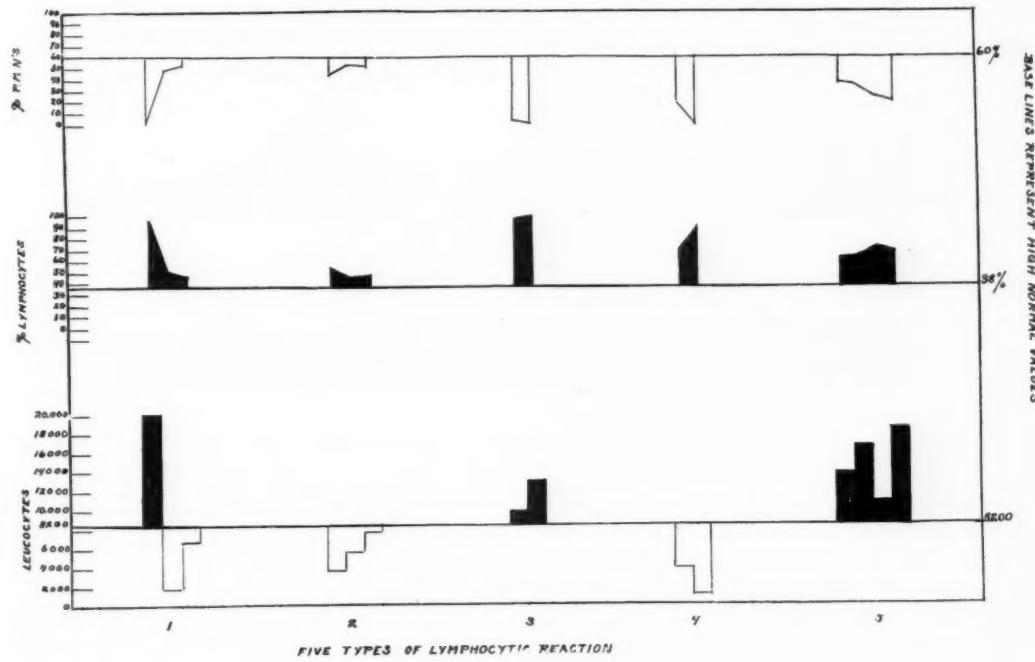


Fig. 1

therapeutic error. Situations of this kind are not rare in the field of hematology, as the cases under discussion in this paper may serve to illustrate.

What, precisely, the rôle of the lymphocyte is, we do not as yet know. Maximow puts the matter succinctly in saying: "There seems to be no secure basis for the discussion of the functions of the lymphocytes. It is not known whether these cells are active in the circulating

and following graphs are based upon biometrical values obtained in 2,500 cases. They are high because they are derived from ambulant patients, not normal people. Increases above normal are shown in black, values below normal in white. Type one represents a relative and absolute lymphocyte response found in a case of infectious mononucleosis. The per cent variation of cells, the change from a leukocytosis to marked leukopenia, all occurred within a period of four to six weeks, the behavior of the blood here showing

*Read at the meeting of the Southern Minnesota Medical Society, Rochester, Minn., October, 1928.

a striking and maximal variation. Type two is illustrative of relative lymphocytosis as found in influenza. Type three represents the absolute lymphocyte reaction occurring during a case of leukemia in transition from the aleukemic stage. Type four again shows a relative lymphocytosis, induced by the toxic action of roentgen rays in a case of chronic lymphadenosis. The complete disappearance of granulocytes in the presence of a severe leukopenia marks this an example, also, of a granulocytosis on a toxic basis. Type five, finally, represents an absolute and relative

health, except for the knees (which have somewhat improved), is good.

Case 2. Man, aged 63. This patient presents himself for routine examination, having no complaints. Past and present history are entirely without incident. Physical examination is negative, *x*-ray studies of chest negative. All laboratory findings, including blood Wassermann, are negative, except for the blood picture which remains to be discussed.

Comment.—This patient has been under observation for six years. Four years ago he had

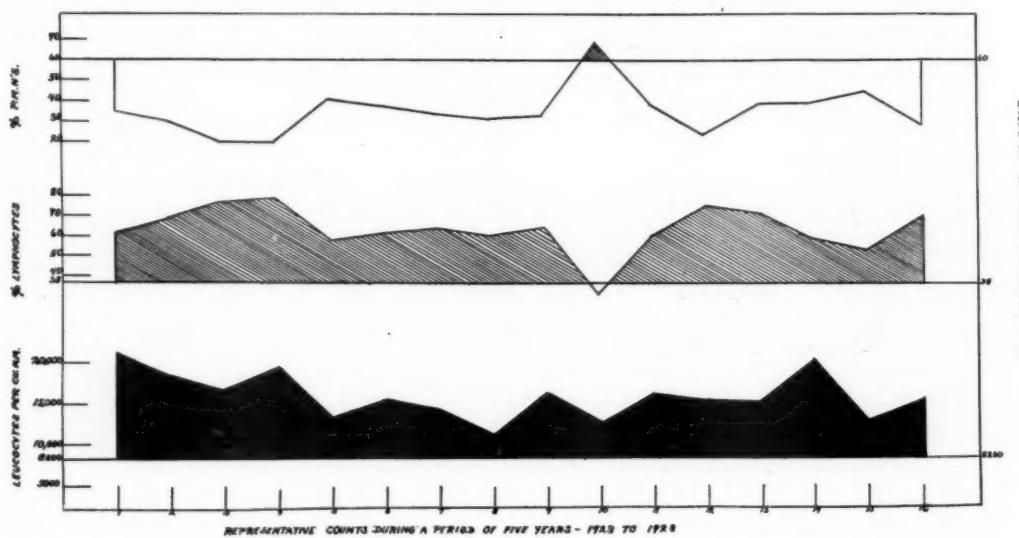


Fig. 2

chronic lymphocytosis, which the cases now to be cited illustrate.

Case 1. Widow, aged 73. This woman presents herself for examination because of what later proved to be hypertrophic arthritis of a mild type of both knees. Past and present history are without incident except for the stiffness of the knees, which has come on gradually for the last five or six years. Physical examination is negative; *x*-ray studies of chest are negative. All laboratory findings, including blood Wassermann, are negative, except for the blood picture.

Comment.—This patient has been under observation for five years and during this time has never had adenopathy, a palpable spleen or liver, skin, eye or other changes indicative of a chronic lymphadenosis. Red cells and hemoglobin throughout have been normal. Her state of

an appendectomy; pathological diagnosis—acute suppurative appendicitis. Two years ago he had an excision and cauterization of an early carcinoma of the rectum, 1 cm. in diameter. Recovery occurred without incident. During the last six years there have never appeared clinically demonstrable adenopathy, palpable spleen, skin, eye or other changes indicative of a chronic lymphadenosis. Red cells and hemoglobin throughout have been normal.

The leukocyte count and differential picture in these cases is of marked interest. The next figure shows the type of blood picture present in Case 1 over a period of five years. As in the first graph, base lines in this and the following figure represent normal values. Solid black shows total leukocyte counts; shaded black, percentage of lymphocytes or P.M.N.'s above nor-

mal. Unshaded outlines convey values below normal. The time interval between selected counts may be extensive; thus, between number 15 and 16 a period of over a year intervenes. It will be seen that the total leukocyte count varies between twelve and over twenty thousand, while the lymphocyte percentage ranges between 36 and 78. The last estimation, done within two weeks, still shows high figures. It appears that normal relative values of P.M.N.'s and lymphocytes were present only once and even then the total leukocyte count was above normal. Turn-

find in chronic lymphatic leukemia. Polymorphonuclears, eosinophils and basophils are too numerous for the average case of leukemia.

"My conclusion from a study of this blood is that you are dealing with a case of lymphatic reaction of some kind which is benign and not leukemic." The report on Case 2 is as follows: "I have looked over the three smears of blood which you sent me and fail to find any evidence in favor of leukemia. I could find no immature lymphocytes.

"Besides the lymphocytes the rather numerous

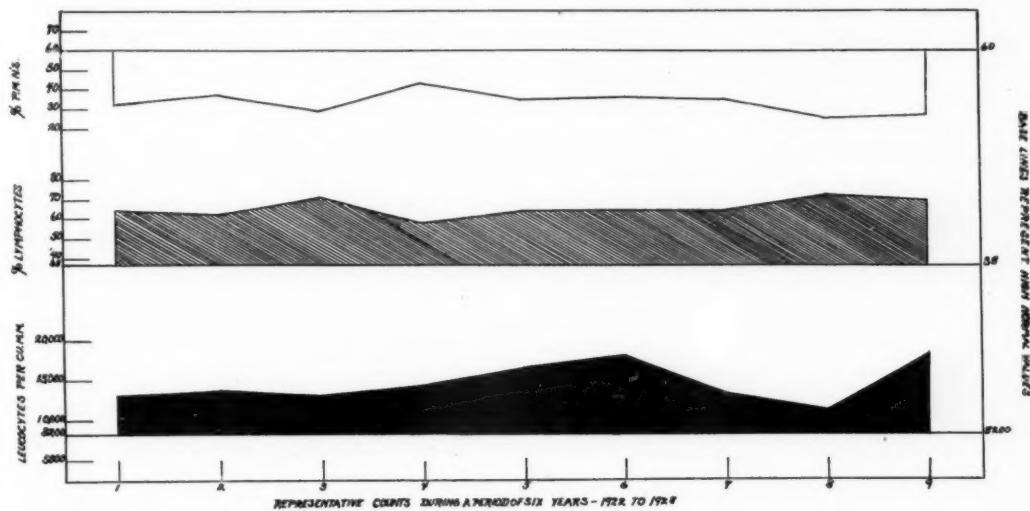


Fig. 3

ing to the next figure one sees precisely the same kind of picture. Here, however, there is never a normal percentage relationship of white cells. The total leukocytes vary from twelve to eighteen thousand and the lymphocyte percentage ranges between 60 and 72. A period of just over a year intervenes between selected counts 8 and 9, the last one having been obtained during the present month.

The blood smears in the two cases present interesting features. Slides were submitted for study to Dr. Hal Downey and his reports read as follows. Referring to Case 1 he says: "I have made a careful study of these blood smears but fail to find any evidence in favor of lymphatic leukemia other than the high percentage of lymphocytes. I could find no immature lymphocytes. There is more variation in the size and types of lymphocytes present than one expects to

'toxic' neutrophils are the most conspicuous feature of this blood. These cells show degenerative features and there is moderate 'shift to the left' in the neutrophil picture due to degeneration rather than immaturity. An Arneth count would not adequately express this feature and so was not done. I found no cells that could be placed in Arneth's class I, but the so-called 'band forms' of Piney can be found without much hunting. The condition of the granules of these cells would seem to indicate that their peculiar nucleus is due to toxic degeneration rather than immaturity.

"I would expect to find some evidence for infection in a patient with a blood picture of this type. The absolute and relative increase in the number of lymphocytes is an unexpected feature in a chronic case. I do not know what to make of it."

Both smears showed some of the degenerated lymphocytes known as Gumprecht bodies, and both some variation in size and type of lymphocytes. There were found in Case 2 also some small lymphocytes practically without cytoplasm



Fig. 4

and since the above report was obtained Dr. Downey says that in Case 2 he has found, after exhaustive search, two lymphocytes that are somewhat immature. He adds, however, that this does not materially alter his point of view as stated above. The next figure shows the type of cell found in both cases.

No basal metabolic studies were carried out in either case. Clinically there has never been evidence of increased rate, the pulse in both averaging about 60 to 65 beats a minute.

Obviously the clinical interpretation of the just cited cases may vary greatly. The problem becomes somewhat more clear upon analysis. For convenience's sake, the next figure illustrates a schematic division of lymphatic reactions. Roughly the sectors below the horizontal line represent conditions in which there exists a leukopenia; those above, conditions in which normal counts or leukocytosis prevail. Clearly the present cases must fall in one of these groups, *i.e.*, pseudoleukemia, leukemia or an indifferent and unexplained class of benign chronic lymphatic reaction.

Pseudoleukemic conditions may, I think, be ruled out, without much difficulty. The course and observed data in the present cases make neither Hodgkin's disease, lues nor tuberculosis a probability.

Chronic lymphatic leukemia, on the other

hand, deserves very serious consideration. Naegelei describes a type of this disease in which all physical signs of leukemia are absent, but in which the blood picture is typical. He says that the condition is very rare and, in fact, describes only one case. The duration was six years and death was due to pneumonia and fractured rib. When first seen this patient, a man, had a white count of 16,000 to 20,000, with lymphocytes 75 per cent. Within a short time, however, the count rose to 30,000 and the lymphocyte percentage to 84.

Can the above described cases be fitted into this group? The total count and the lymphocyte percentage in both have remained below Naegelei's figures. The evidence from the blood smears is perhaps equivocal. Gumprecht bodies were found in both, also lymphocytes of various sizes. We know, however, that these phenomena are not peculiar to leukemia, but arise not infrequently in the lymphocytosis of infection or intoxication. The finding of some almost naked nuclear cells and two somewhat immature lymphocytes in Case 2 does lend weight to the leukemic concept in this case, though here again the data are not entirely peculiar to lymphadenosis. Azure granules were found in the lymphocytes of both cases, which one does not so much expect in leukemia. True Rieder cells and very young forms were never found in either case.

Clinically, as we have seen, no evidence exists that can in any way support the leukemia concept. This is particularly interesting since one has, of course, been on the watch for any developing signs that might appear. Extraneous examinations such as repeated roentgen ray and fundus investigations have likewise never disclosed any variation from normal. After careful reflection one feels that there is no evidence on hand to place Case 1 in the category of leukemias, while Case 2 can, up to this time, be placed neither in nor out of it.

Thus it seems best, at present, to postulate as a working basis a chronic lymphatic reaction of unknown origin. To close the problem with the label leukemia is, one suspects, neither justifiable nor intelligent. Chronic lymphatic leukemia is a fatal disease, perhaps little influenced in its course even by modern *x*-ray or radium therapy. Let us be careful, then, how we use the term. Acute mononucleosis has finally parted company with its fatal and very similar companion, acute

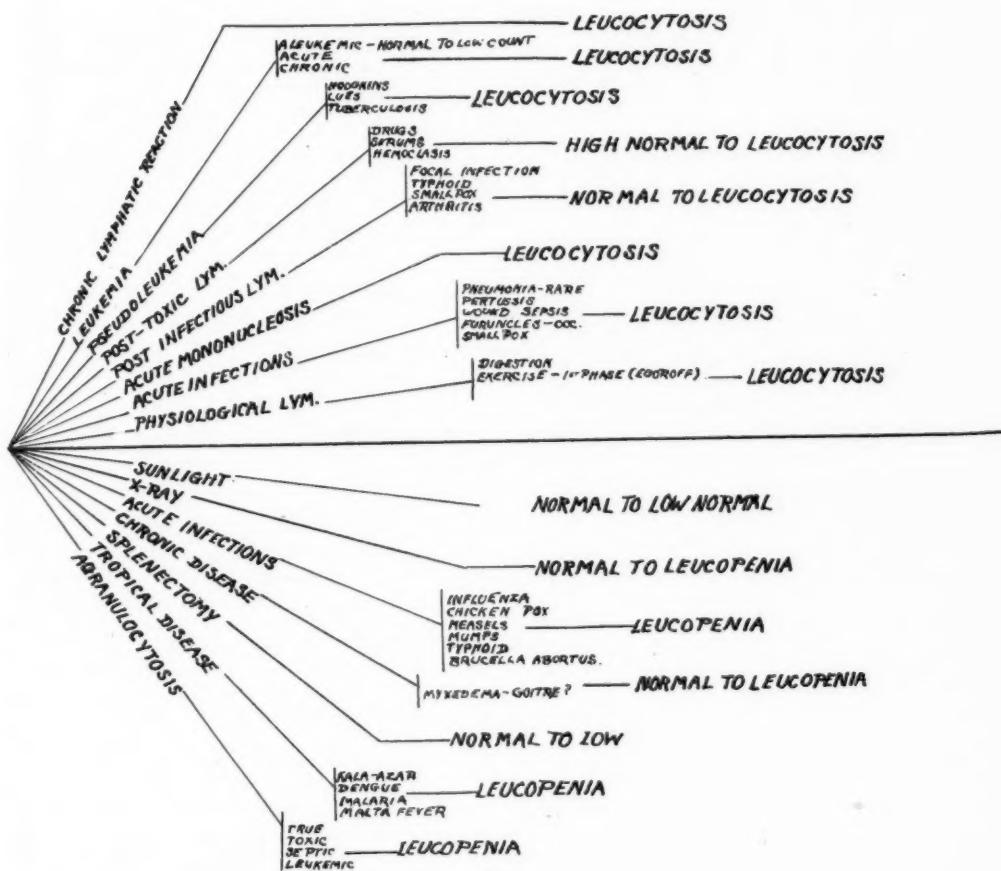


Fig. 5

lymphatic leukemia, and it seems not entirely unreasonable to suppose that one may, occasionally, meet with chronic lymphatic reactions that are, in fact, benign. No such absolute claim is made for the above reported cases. Only further observation and eventual histological section can decide the point, but the possibility seemed interesting enough to warrant recording at the present time.

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OVARIAN HORMONES AND OVARIAN ORGANOTHERAPY

The evidence from the experimental laboratories and the clinics, accumulated especially during the last few decades, points to the conclusion that the mammalian ovaries exercise their influence on the so-called secondary sex characters and the sex life of the mammalian female through the mechanism of the hormone or hormones produced by some element in the ovary. It is therefore rational to treat or attempt to treat symptoms due or presumably due to ovarian insufficiency by substitution therapy. Summing up the extensive clinical trials with ovarian preparations, generally administered orally, Novak, in 1924, stated that the results are rarely striking and often nil to the level-headed observer. Much work has been done on the separation and concentration of the so-called follicular ovarian hormone and preparations have been obtained which, when administered parenterally, are reliably reported to stimulate uterine growth and to introduce changes similar to estrus in spayed animals. To date the use of such preparations on patients has been neither extensive nor encouraging. The various ovarian hormone preparations that now seem sufficiently purified to be introduced hypodermically without serious results to the patients should be given trial in definitely uncomplicated ovarian deficiency in order that more may be learned as to their actual effects. (Jour. A. M. A., October 20, 1928, p. 1194.)

POWER CANDY MINERALIZED

The Council on Pharmacy and Chemistry reports that Granger Farms, Buskirk, N. Y., requested acceptance for New and Non-official Remedies of Granger Farms Power Candy Mineralized. The candy is claimed to contain one part of tincture of iodine U.S.P. in 5,000; one part in 4,000 of ferrous lactate; 1 per cent of calcium carbonate; 1 per cent of calcium phosphate tribasic; and one-twentieth of 1 per cent of calcium glycerophosphate. The proprietor stated that he is "convinced that with the exception of epidemics and injuries, about 99.44 per cent of the ills that American people are suffering from are due directly or indirectly to the lack of proper mineralization of their foods, and especially the lack of calcium." The Council held Power Candy Mineralized not to come within the scope of New and Non-official Remedies. Because of the unwarranted claims made for it, the use of the product, in the opinion of the Council, is contrary to the public welfare. The candy appeared to be a commercial venture using public health or welfare as sales talk, and in so doing the promoters go beyond the proved facts in (1) claiming that calcium deficiency is almost universal in this country; (2) claiming that such diseases as diabetes and cancer are due to calcium deficient diet; and (3) claiming that mineralized candies are an efficient and safe method of correcting the alleged calcium deficient diet. (Jour. A. M. A., October 27, 1928, p. 1289.)

POLIOMYELITIS: A GENERAL DISCUSSION*

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VARIOUS large epidemics and recent discussions of acute anterior poliomyelitis have put this disease in a class with alcohol and religion as subjects for debate and speculation. At present there is a prevalence of polio in our part of the country and for this reason I have chosen it as the subject of a few general remarks without attempting to discuss any one phase of the disease in detail.

ETIOLOGY

To seek causes for natural phenomena is one of the outstanding traits of human nature. The search for the origin of various diseases is as old as civilization. Many of the riddles have already been solved, but the identity of the so-called "filter-passing virus" still remains a secret. It is now pretty generally believed that acute anterior poliomyelitis is an acute specific fever, caused by a general infection with some filter-passing virus, in which paralysis of various muscle groups is an incidental symptom. While the virus is strongly neurotropic it affects other organs in the body as well as the central nervous system, resulting in splenic and glandular congestion as well as multiple necrotic lesions in the liver. According to Flexner¹ the virus becomes very active when once adapted to the monkey and can be passed from animal to animal without altering its virulence. There is at the Rockefeller Institute a virus that has been passed for twenty years and its activity still is unimpaired. Flexner believes that he has seen the virus in the form of so-called "globoid bodies."

Rosenow² states that he has been able to isolate a pleomorphic streptococcus from tissues sent in from widely separated parts of the country. The size and shape of this germ depend upon the conditions under which it is cultured. Under proper cultural variations it has been rendered filterable. According to Rosenow's reports this streptococcus can be isolated from the nasal washings of people ill with poliomyelitis and also from well contacts during an epidemic. When it is injected

into rabbits or guinea pigs, flaccid paralysis with lesions of the central nervous system ensue. Further, the more sensitive strains are agglutinated by serum from convalescent patients. Most investigators agree that the portal of entry for the virus is either the nasal mucosa or the gastrointestinal tract.

However, Pitzman³ ingeniously evolves the theory that poliomyelitis is in reality atropine poisoning caused by the contamination of milk supplies with atropine as a result of the ingestion of jimson weed by the cows from which the milk is obtained. He states that Flexner's alleged monkey poliomyelitis is in reality a foreign protein reaction and that sterile normal horse serum will produce the same effects as do emulsions containing the so-called filter-passing virus when injected into the brains of monkeys. After regarding the question from all angles I feel that Flexner's ideas are the most nearly correct.

PATHOLOGY

Whatever the etiology of anterior poliomyelitis may be, the pathological effects of the causative agent upon the central nervous system are very definite and characteristic. The pathological condition divides itself into three stages: those of onset, destruction, and repair. If we bear these stages in mind the clinical phases of the disease will be more easily understood and remembered.

In the stage of onset there is no actual invasion of the central nervous system. The condition is a generalized infection which has as yet failed to localize in any one portion of the body. That the defense mechanisms of the body have already been called into play is evidenced by the leukocytosis in the blood. In this stage the virus may be recovered from the cerebro-spinal fluid.

The stage of destruction begins when the central nervous system is actually invaded by the polio virus. The extent of the pathological process is always greater than can be inferred from the clinical symptoms. The meninges are hyperemic, edematous, and show mild perivascular infiltration with lymphocytes and a few polymorphonuclear leukocytes. Similar cells can be found

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in the meshes of the pia arachnoid. The spinal cord and brain also are hyperemic and edematous and in some places hemorrhagic and necrotic areas may be seen. Microscopically the picture is quite characteristic. All of the vessels are involved, showing engorgement and perivascular cuffing. Inasmuch as the gray matter, especially the anterior horns, is so much more richly supplied with blood vessels, the process appears to be localized here. At first there is no actual destruction of nervous parenchyma, but this occurs a little later when distinct evidences of neuronophagia can be found. According to Buzzard and Greenfield⁴ the virus has no specific effect upon the nerve cells themselves, but the damage is produced by the inflammatory exudate in which the cells become submerged. Some cells are actually destroyed and the function of others is merely impaired by edema and possibly by chemical influences. This explains why muscles which are completely paralyzed early in the disease may show considerable return of function after the acute stage of the illness has passed. The cells in which the motor impulses to these muscles arise were only temporarily affected.

During the stage of repair, resolution of the inflammatory process takes place with the loss of only a part of the anterior horn cells. In some, necrosis has led to the complete disappearance of the cellular elements, and in others actual cavitation with fluid formation may have taken place. In the chronic stage, the paralyzed muscles themselves show simple atrophy with increase in the fibrous tissue elements and shrinkage of the muscle fibers. Sometimes fatty infiltration may be seen in the muscles.

SYMPTOMATOLOGY

Having busied ourselves with chemical, bacteriological, and microscopic considerations, let us see what are the clinical effects of all these influences. What happens to the patient? What are his symptoms at the various stages of the disease?

In the early stages the symptoms are often so mild or so similar to those of other infections, far less serious, that it frequently is impossible to diagnose poliomyelitis in its incipiency. The symptoms are like those of any other infection, namely, fever, lassitude, headache, loss of appetite, malaise, and mild gastro-intestinal symptoms,—usually vomiting and constipation. As

yet there are no signs of central nervous system involvement. In the presence of an epidemic of polio, however, two phenomena should always excite suspicion in any patient ill with an acute fever. These are : (1) pain in the spine and in the limbs, and (2) increased pressure and increased cell count in the cerebrospinal fluid. The examination of the cerebrospinal fluid is our most important single diagnostic aid in the early stages of poliomyelitis. As far as I know, there are no contra-indications to lumbar puncture in this disease and, as we shall see later, early diagnosis is of utmost importance if we are to expect any results from our treatment. Adler⁵ examined forty-five fluids from forty-four patients in a recent epidemic in southern Minnesota and found the fluid to be usually clear unless the cell count was high. His highest cell count was 266 but I have seen cases in which it went over 1,000. At first these may be mostly polymorphonuclear, but later on lymphocytes predominate. When there is a large number of cells in the fluid it takes on a ground glass appearance. Occasionally one finds a normal cell count and Adler also reports yellowish fluids and pellicle formation such as we formerly associated only with tuberculous meningitis. Curiously enough, the globulin content of the cerebrospinal fluid in polio usually is not high even in the presence of high cell counts. There is some excess but it is not marked. Another aid in the early diagnosis of polio may be found in Rosenow's skin test, but I have not had any experience with it.

In some cases the disease never goes beyond the early stage and the patients recover without any further trouble. These are known as abortive cases. Some think that this form is widespread and that most of us have had it at one time or other and are therefore immune. Because the symptoms are so similar to many other acute infections the diagnosis is missed, and many people possess an acquired immunity without knowing just when and how it was acquired.

However, some cases which appear to be abortive at first are not of this type at all and we must always be alert for what is known as the "dromedary" type of the disease. In this variety the early symptoms subside and the patient remains apparently well for a few days, only later to exhibit signs of definite central nervous system involvement. These signs are quite characteristic and when they appear in the presence

of an epidemic the diagnosis of poliomyelitis becomes much less difficult. In addition to fever, headache, anorexia, and malaise, the patient suffers extreme prostration, much more than can be accounted for by the fever, which seldom rises above 102 degrees F. The child usually is drowsy, has a stiff neck, and, what is more characteristic, a stiff spine. The head can be flexed on the neck, but the neck cannot be flexed on the chest. Further, the child cannot bend over forward while sitting up in bed. Kernig's sign is usually present but as a rule is not very marked. Convulsions may occur, the skin is hyperesthetic and the child evinces a desire to be left alone. Sometimes the pain in the extremities is so severe as to make one think of an acute rheumatic fever. Also there is considerable tenderness on deep pressure, suggesting a myositis. There may be a characteristic coarse tremor when the child moves, and the tendon reflexes usually are exaggerated. I have noted a positive Babinski response in some cases. In addition to these signs of central nervous system involvement, the patient's face has an appearance somewhat suggestive of scarlet fever. It is pinched, flushed, and there is a circumoral and a circumnasal pallor. The throat is injected and the pulse is rapid, out of proportion to the temperature.

As at the end of the early stage, the disease may subside also at this point. It is then known as the non-paralytic type. Luther⁶ distinguishes between the abortive, the non-paralytic, which I have just described, and the last or paralytic groups of cases. In this last type any or all of the extremities as well as the trunk muscles may become paralyzed. The paralysis is, of course, of the lower motor neurone or flaccid type. Unlike a peripheral neuritis it comes on rapidly and is in full effect from the start. Decreased or absent tendon reflexes, atrophy, vaso-motor paralysis, fibrillary twitchings, and considerable tenderness to pressure form the characteristic picture. When death occurs it usually occurs in this stage and is due to respiratory paralysis resulting from involvement of the medullary centers. This usually occurs within the first four or five days.

Greenfield⁷ believes that the infection travels up and down the spinal cord via the central canal and thus does not come in contact with mesoblastic tissue, which is strongly virucidal. In people who die of polio rapidly ascending to

the medulla there is always a healthy, patent central canal.

Still another type of polio, and one that is especially prevalent at present, is the so-called bulbar type. Each one of the first three cases seen in St. Paul this last summer occurred ten days following tonsillectomy. The fourth case occurred fifteen days following tonsillectomy. The criticism and discussion subsequent to these cases resulted for several weeks in the refusal of many men in St. Paul to do this operation. All of these patients had facial palsies of the nuclear type, disturbances of swallowing, and three out of the four terminated fatally. Autopsy on one case seen by Dr. J. S. Gilfillan of St. Paul showed typical nuclear degeneration of the seventh and eleventh cranial nerves, *i.e.*, a polio-encephalitis. Another case seen by my associate, Dr. E. M. Hammes, began with fever and gastro-intestinal symptoms followed by drowsiness, and headache, and terminating with bulbar symptoms which resulted in the death of the patient.

The higher cranial nerves, especially the abducens and the motor trigeminus, may also be involved. Some cases begin in the lower extremities and, like a Landry's ascending paralysis, ascend rapidly, involving the cranial motor centers, resulting fatally.

PROGNOSIS

If the paralysis does not ascend to cause respiratory failure, the prognosis *quoad vitam* is good. The chances for medullary involvement are greater when the cervical portion of the cord is affected than when only the lower extremities are paralyzed. The prognosis for complete recovery when once the paralytic stage is arrived at is doubtful. A great prognostic aid in this stage is the electric excitability of the paralyzed muscles. Those muscles still showing some response to faradic stimulation at the end of two or three weeks will, in all probability, have considerable return of function. Those muscles showing a complete reaction of degeneration at the end of the first week will in all probability remain paralyzed. However, even in this event, there may be some return of function after a period of several months.

IMMUNITY

Virus diseases in man and in animals usually confer upon their victims a more or less perma-

uent immunity. This immunity is due to the occurrence of virucidal substances in the blood of the recovered individual. For this reason the blood or serum from a recovered patient exerts a destructive action against a reinoculated virus. In the case of polio the serum from a convalescent patient will inactivate, both *in vitro* and *in vivo*, the virus causing the disease. This fact is made use of in the treatment of poliomyelitis. Further, Rosenow has prepared an antistreptococcal poliomyelitic horse serum, the administration of which in some cases seems to have resulted in definite improvement. Concerning the relative merits of Rosenow's serum and human convalescent serum, I will quote the conclusions of Dr. Rex L. Diveley,⁸ who had considerable experience at the Kansas City General Hospital during the epidemic of 1925. These are as follows:

1. Human convalescent poliomyelitic serum and antistreptococcal poliomyelitic serum of Rosenow are capable of neutralizing the virus of poliomyelitis. More complete with the human convalescent serum.
2. Monkeys can be immunized against an active virus of poliomyelitis by human convalescent poliomyelitis serum and antistreptococcal poliomyelitic serum of Rosenow. More complete with human convalescent serum. Does not last over a six-month period.
3. Human convalescent serum and antistreptococcal poliomyelitic serum of Rosenow are both highly specific in the treatment of acute infantile paralysis. Human convalescent serum more potent. Better results obtained when serum is given early, although recovery is noted even 48 hours after definite paralysis is evidenced and serum treatment started at that time.

TREATMENT

The treatment of anterior poliomyelitis is divided into stages corresponding to the stages of the disease. During the acute stage rest and protection are most to be desired and the routine treatment for all acute infections should be followed. Also, repeated spinal drainages are of the utmost benefit in controlling the cerebrospinal fluid pressure. Equally important is the earliest possible administration of human convalescent poliomyelitic serum. As stated before, this is of no avail unless given in the early stages of the disease and the importance of early diagnosis

thus becomes evident. In preparing and administering the serum I use the method outlined by Bourne.⁹ The serum should be that of a patient some weeks convalescent from the disease and, of course, free from syphilis and malaria. Collect 200 c.c. of blood in a sterile flask previously rinsed out with sterile normal saline solution. Allow the clot to separate and then draw off the supernatant serum. Between 75 and 100 c.c. usually can be obtained in this manner. Keep this serum in a cool place in a bottle stoppered with sterile cotton. Fifteen c.c. are given intraspinally and a like amount intravenously daily on two successive days, a spinal drainage being done before each administration.

If convalescent serum cannot be obtained, Rosenow's antistreptococcal poliomyelitic serum may be used intramuscularly in combination with repeated spinal drainages.

In addition to the serum treatment, massive doses of urotropin have been used. Bourne recommends 10 grains every two hours until 24 doses have been given. The urine must be watched for blood and albumin at this time and the urotropin discontinued should any signs of renal damage appear. Urotropin may be given also as a prophylactic to exposed children.

When paralytic symptoms appear, serum treatment is not nearly as effective as in the early stages. During the paralytic stage, the affected limb must be splinted to prevent anomalous positions and contractures. Due to the vasomotor paralysis the paralyzed extremity is cold and lifeless. Therefore, external heat in the form of woolen wrappings, the therapeutic lamp, and hot water bottles should be employed. Absolute rest in bed and freedom from weight bearing should be insisted upon by the attending physician. Sedatives and analgesics may be employed as indicated.

Chatterton¹⁰ states that the acute stage of the disease is not over until the temperature becomes normal and all pain and tenderness disappear from the paralyzed extremities. It is only then that gentle massage and passive motion may be employed. Great caution should be exercised here, as too vigorous handling may destroy what chances a muscle has to recover. If large muscle groups have been involved weight bearing should be deferred for from twelve to eighteen months. The general condition of the child should be kept up to above normal. He should be supernour-

ished, if anemia is present iron must be given and later on in the treatment tonic doses of strychnine may be administered. Unless one has a trained operator, electric currents had better be avoided. Later on, muscle training and braces or splints can be used. From this stage on the problem becomes an orthopedic one, and during the third year of the disease operative measures may be used to correct what residual deformity there is.

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IRRADIATION AND THE BLOOD

The enthusiasms that have been aroused by the demonstrable physiologic potency of irradiation with ultraviolet rays generated in various ways call for restraint before they are permitted to promote therapeutic procedures that may presently be discovered to be ill advised. No long ago it was shown that the exposure of dogs to carbon arc radiation may give rise to variable results with respect to the changes in the content of erythrocytes in the blood. Depending on the dosage, increases and decreases were noted. A continuation of this work shows that changes in the plasma volume also may take place. The investigators believe that erythrocytes may actually be destroyed by excessive irradiation with massive exposures. Our uncertain knowledge in regard to the effects of irradiation should serve as a warning against undue ventures that may actually border on quackery, until further explicit knowledge is available. (*Jour. A. M. A.*, October 6, 1928, p. 1038.)

UNGENTUM MAZON

An inquiry was sent to the Belmont Laboratories, Inc., to ascertain whether the composition of Mazon and Mazon Soap and Ointment was secret, and, if not, what were the formulas. The Belmont Laboratories, Inc., replied as follows: "We very much regret our inability to comply with the request contained in your letter dated September 21, with reference to Mazon and Mazon Soap for the reason that the composition of both of these products is secret." It seems hard to believe that there still are pharmaceutic houses that will endeavor to exploit products of secret composition to the medical profession. The physicians who are asked to buy such products should refer the detail men to the paragraph in the Code of Ethics of the American Medical Association which states that . . . it is equally unethical to prescribe or dispense secret medicines or other secret remedial agents, or manufacture or promote their use in any way. (*Jour. A. M. A.*, October 20, 1928, p. 1213.)

MODERN NEEDS IN THE CONTROL OF TUBERCULOSIS*

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HISTORY is a valuable subject from which to judge and plan for the future. It records the triumphs and failures of past attempts and points out the reasons for and results of these same triumphs and failures. It seems strange that, though we recognize history's virtue in the respect, nevertheless we have neglected to apply it conscientiously to our everyday problems. We have been slow to learn from the lessons that it teaches us.

When we speak of our modern needs, it is desirable to attempt to justify our assertions from the experience of history. It is wise to ascertain if previous records uphold our convictions. Let us first take the subject of early diagnosis. It has received widespread attention and most of us are acquainted with its unquestionable value and need. However, when we remember that only about 17 per cent of admissions to our tuberculosis sanatoria are early cases, we realize that added emphasis on this subject is required. The value of early detection of disease was recognized by the ancient healers. They realized that with advanced disease came lessened hope for a favorable termination of the disease. Laennec in his writings during the first part of the Nineteenth century stated that both the physician and the public entertained the belief that pulmonary phthisis was curable, above all when the disease was "taken in time" and whilst it was still "in the first degree." He also observed that many cases with pectoriloquy indicating cavitation recovered from their symptoms and live to die of other disease. Laennec felt convinced that with the more general use of the stethoscope we would be impressed with the greater frequency of this phenomenon. Statistics tell us that approximately 80 per cent of early treated cases of pulmonary tuberculosis recover and with increased disease come fewer recoveries. We feel therefore that early detection of tuberculosis is an urgent need and a desirable feature of our sanatorium program.

The subject of sufficient sanatorium care has been a vital problem ever since Brehmer first established such an institution. The problem can be divided into two distinct phrases: (1) sufficient sanatorium care for the patient; and (2) adequate sanatorium care for the community. As we have it today, to increase one means to decrease the other. The longer we keep the individual patient, the fewer beds remain for the community's contribution of tuberculous cases. The high cost of constructing sanatoria and the high cost of relapses in tuberculous persons have produced a situation which demands our wisest judgment. Experience has taught us that a long sanatorium sojourn gives the most effective healing to a tuberculous lesion. The tendency in late years has been to increase the period of bed rest together with an added stay at the sanatorium. This necessitates an increased bed capacity for the reason that under existing conditions we do not have adequate sanatorium facilities for all of our active cases. The outside cases are still numerous.

One of two things or perhaps both must be done. The first consists of an increase in our sanatorium bed capacity to meet the community's demand; the second is a more rapid turnover of our patient population. Both are fraught with difficulties and both must be wisely judged in order best to solve this vital problem.

With a more rapid turnover of patients comes the added necessity of an efficient follow-up scheme. The scheme should function in various ways. It should give us a history of our discharged patients in regard to their response to a new environment. It should give the patient an opportunity to keep under effective medical supervision. It should help to protect the community from the careless and non-cooperative consumptive. Past experience has taught us that a record of our activities and results is essential for the proper evaluation of the worthiness of our efforts. Our follow-up system should dedicate itself to just that thing—that of making known the true results of our efforts.

*Presented before the Minnesota Sanatorium Association at Mineral Springs Sanatorium, Cannon Falls, Minnesota, Aug. 9, 1928.

To gain the best results from a follow-up scheme it is necessary to supervise the activities of the discharged patient until he is again on a sure footing. Dr. Taylor, in his presidential address, points out to us the experience of the Metropolitan Life Insurance Company Sanatorium, showing that 80 per cent of their patients under supervision were at work seven years after discharge. A survey in New York City of sanatorium ex-patients, unsupervised, showed that 52 per cent had relapsed within a year after leaving the sanatorium. The point to be made is that a follow-up scheme cannot function at its best without a rehabilitation program. The two should be linked together, for one without the other means lack of supervision with all its dire consequences. To be without these two things in our tuberculosis program is like going to sea without a pilot.

As we reflect over the history of tuberculosis we become impressed by the potent rôle played by research work. Its results have served as a nucleus around which our modern program has developed. The clinical and laboratory research work of Laennec, Brehmer, Villemin and Koch have left us with our present enlightenment on the subject of tuberculosis. They were the originators of ideas that gave us a practical method for handling the tuberculosis situation. Laennec with his stethoscope, Brehmer with his sanatorium, Villemin with his proof that the disease was infectious, and Koch with his tubercle bacillus gave us a quadric upon which rests the foundation of our tuberculosis program. We are pleased with these accomplishments, but let us not be lulled into the deteriorating and stupefying sleep of satisfaction. There are still great and potent possibilities on the research side of tuberculosis that need investigation, enlightenment and our ardent support. The invitations of the unknown factor are as numerous, pressing and promising today as they were when Koch discovered the tubercle bacillus. But they can never be answered until we attempt wholeheartedly, sincerely and co-operatively to encourage and develop the research side of this disease. Tuberculosis still kills more people between the ages of nineteen and thirty-five than any other single disease, even though its killing power for all ages has dropped to sixth place. We need re-

search work to aid us in attempting to gain a better understanding of this fact and after gaining it to point to a method for decreasing its ravages. We need a deeper investigation into Todd's work on oxygen, Grant's work on vitamines, Corper's work on carbon dioxide, and we must have a better understanding of the body's immunological reaction to tubercle bacilli invasion. We should know why a normal lung when collapsed favors the development of tuberculosis while a diseased lung when collapsed tends to heal. These are but a few of the many problems that have been started in tuberculosis research work and which need added penetration. The time is ripe for developing a more general interest and support of this phase of tuberculosis.

Our state sanatorium program has been definitely lacking in initiative and support in research work. Let us hope that the future will bring us relief and that we may strive more vigorously and surely toward that goal which will unveil another one of nature's secrets and make life and disease a bit more intelligible. That is the mission of research work. It enlightens us, gives us new knowledge and makes the handling of a problem more scientific and effective. There are great possibilities for a full time research worker for our state tuberculosis sanatoria.

In conclusion, let me briefly summarize our modern needs as they have presented themselves to me:

1. Early diagnosis, in order that we may effect more recoveries, remove more carriers and so justify our existence.
2. Sufficient sanatorium care, which should strike a happy medium between the patient's need and the community's demand.
3. An effective follow-up system which would retain the doctor-patient bond, thereby aiding the discharged patient to adjust himself safely to a new environment.
4. A rehabilitation program to complete in a proper way the work accomplished at the sanatorium.
5. A full-time research worker whose duty should be to penetrate more deeply into our tuberculosis knowledge and to raise before us more possibilities.

COÖPERATIVE DIAGNOSIS*

(A Radiological Conception)

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DURING the earlier years following Roentgen's discovery, the science and art of roentgenology was on trial, under the critical and not always sympathetic eye of the medical profession. The pioneers who undertook to follow this new specialty were called upon to demonstrate and prove their right to recognition. It may now be said, without danger of serious contradiction, that these men met the test fairly, as only true followers of *Æsculapius* could meet it. They accepted without question the conditions imposed upon them, one of which was that they must pit their ability to make diagnoses, with only the roentgenogram and fluoroscope to aid them, against that of internist and surgeon, who had the benefit of generations of accumulated experience with all other diagnostic agencies at their command. They were often intentionally kept in ignorance of the case history and physical findings, and when individual errors of omission or commission occurred, not the individual but the method was sometimes held up to ridicule or criticism.

To support this statement, perhaps the writer may be permitted to cite a few personal experiences:

One of our older but more progressive practitioners of medicine once said to me, "Do you think it possible, by means of the *x*-ray, to recognize peptic ulcer?" I said, "Yes, doctor, I consider it quite possible." He replied, "Now I know you are talking 'fairy tales.'" My reply, to him, was unscientific and radical and I was henceforth regarded by him as dangerous to the scientific and conservative practice of medicine.

Again, a surgeon was conducting a clinic over a case which I had diagnosed "Early carcinoma of the pylorus." Not finding the lesion, with the stomach exposed to direct palpation, he said to the class, "This shows the dangerous fallacy of depending upon the *x*-ray report for a diagnosis of gastro-intestinal disease." Ten years later this case came to autopsy and the stomach was found

involved from pylorus to cardia with "Limitis plastica" and the microscopic diagnosis was "Slow growing carcinoma of the stomach." It is very probable that this lesion had existed for more than the ten year period.

I recall listening to a case report by a prominent gastro-enterologist of Chicago, the case being one in which a mistaken diagnosis had been made. However, to experienced roentgenologists in the audience the correct diagnosis was clearly evident on the films shown in the demonstration. The demonstrator was asked, "Did your roentgenologist express an opinion in this case?" He replied, "We have no roentgenologist and, if we had, we would not accept his opinion."

Happily, these pioneer days of roentgenology have passed and the roentgenologist is accepted today as a necessary evil if not as a valuable adjunct to any group of diagnostic specialists.

This is indeed a "pure" specialty, since its appeal for recognition is directed exclusively to practitioners of medicine. The sole aim of the roentgenologist is to assist the clinician to attain diagnostic accuracy and his existence depends very directly upon his ability to accomplish that purpose. The art of diagnosis has become more complex since the advent of *x*-rays; but at the same time it has become more accurately scientific, since a great wealth of objective evidence has been brought into the clinical picture through this agency. Diagnosis remains, as it always has been, the art of assembling all available evidence, both subjective and objective, and deducing therefrom a conclusion or an opinion as to the fundamental and contributing causes of any resulting train of symptoms.

The part which the *x*-ray may play in this ensemble of clinical evidence is directly proportionate to the knowledge of pathology, and its peculiar manifestations on film or screen, possessed by the roentgenologist.

Some knowledge of what the clinician has in mind before he refers a case for *x*-ray examination would be of assistance to the roentgenologist who wishes to make his reports of the greatest possible value to the clinical man. For example, if he knows that the latter is consider-

*Read before the Omaha Douglas County Medical Society, Omaha, Nebraska, Sept. 25, 1928.

†Radiologist to the Miller Hospital and Miller Clinic, St. Paul.

ing the possibility of metastatic malignancy, he will specifically state in his report that he finds no evidence of malignant disease, thus showing that he has given special attention to that particular question. Or, let us assume that an abnormal area of dullness has been found over the mediastinum. If the radiologist knows this, he will not be content until he has seen films made at various angles and has fluoroscoped the chest and mediastinum. He may thus detect a lesion which might be overlooked in a routine stereoscopic set of chest films.

There is no more reason why the roentgenologist should be kept in ignorance of the case history or clinical features of the case than there would be for the surgeon or internist to make his physical examination without such information. Even the pathologist who examines tissue under the microscope demands information on certain points before he will render an opinion as to the exact nature of the lesion.

The roentgenologist proceeds most intelligently in his analysis of a film or screen image if he knows certain clinical phases of the case. Let us consider a heart case in which there has been heard a recurrent friction murmur. A knowledge of this fact piques the scientific curiosity of the roentgenologist, and, instead of merely measuring the heart shadow and describing its outline, he studies: (1) the cardio-phrenic angles for evidence of pericardial fluid or adhesions; (2) the cardiac pulsations for retractions of pericardium during systole; or (3) looks for a possible pleuro-pericardial "tug" suggesting adhesions. His report now conveys to the clinician the exact information he is seeking.

In many instances the *x*-ray findings are so obvious and typical that no knowledge of the clinical manifestations of the case is needed either to guide the roentgenologist in his search for evidence or to aid him in the accurate interpretation of his observations. On the other hand, the procedure which he may elect to follow in his examination may depend upon clinical data already in the possession of the referring physician, but of which the radiologist is wholly uninformed. Thus if he knows that occult blood has been found in the feces, he will naturally study the gastro-intestinal tract, especially the stomach and duodenum, first and with the utmost care, whereas if pain is the only essential symptom, he may prefer to rule out the gallbladder

as far as possible before proceeding with his gastro-intestinal investigation. Valuable time may thus be saved, and the patient spared unnecessary delay and expense.

It may be said with some truth that all of these things merely constitute different steps in that which should be a routine examination. But it is an unfortunate human trait to be more cursory, perhaps less thorough, in any routine procedure than in a special one with a specific object in view.

The radiologist has the right to assume that, as a consultant in the case, he has been taken into the full confidence of the clinician and has been told everything of importance which the latter knows about the case. If he is not so informed, he may devote much unnecessary attention and time following up and reporting upon some phase of the case of which the clinician is already thoroughly cognizant, perhaps to the neglect of some other phase, information upon which would be more valuable to the referring physician. Let me cite an example: Recently a patient, aged 55, was sent in for a complete gastro-intestinal and gallbladder study. She had had a previous *x*-ray examination and multiple diverticula of the colon had been found, but this information was withheld from me. I found the gallbladder Graham-positive, and also observed a dense shadow in this region which intrigued and puzzled me. The patient was asked to return for examination on subsequent days to determine the constancy of this shadow. A laxative was given and lateral films were attempted although the patient was quite obese. Eventually a barium meal was given, followed by barium enema, and the mysterious shadow was proven to be a large diverticulum of the colon near the hepatic flexure. If I had been informed that diverticula had been found at some former examination, the cause of the shadow would have been suspected at once and demonstrated without many days of futile study and effort.

In the interpretation of radiographic or screen findings, a knowledge of the duration of symptoms is often important. A good illustration of this is in the differentiation between gastric syphilis and carcinoma. If the disease is known to have existed for a year or more, an unequivocal diagnosis of carcinoma would not be ventured, at least without a negative Wassermann test. Of course it may be well said that this is

the clinician's job, not the roentgenologist's. But if the roentgenologist is on record with a diagnosis of gastric carcinoma, in a case which later proves to be syphilis, the clinician will often be the first to criticize him. And this communication is a plea for coöperation, and an effort to prove that better diagnostic results will accrue if there is a sympathetic understanding of some of the problems which confront the roentgenologist.

In the field of lung diagnosis, this coöperation is no less important than below the diaphragm. Bronchiectasis is not always readily recognized in stereoscopic *x*-ray films, but if the clinician informs the radiologist that symptoms point to that condition, the latter will not be satisfied until he has found ways and means to rule it out or clearly demonstrate bronchiectatic dilatations. The writer is familiar with the argument that if the radiologist knows the history he may attribute undue significance to questionable *x*-ray signs. This same argument might be employed with even greater force against the use of the case history in the interpretation of physical signs, since, in the last analysis, the radiologist must rely upon objective evidence which he is in a position to demonstrate to the inquiring physician.

A recent case was one of actinomycosis of the lung in which the correct diagnosis was not suspected until after rib resection. The ordinary lung abscess, bronchiectasis, etc., were ruled out on the *x*-ray evidence and perhaps the only reason that the diagnosis was not made was that actinomycosis was not thought of. If a differential diagnosis had been submitted by the clinician it would doubtless have included actinomycosis as a possibility. By a process of exclusion the diagnosis might then have been made. As it was, the *x*-ray report merely described the anatomical changes without suggesting a probable cause. In this instance responsibility for the error was equally divided and the illustration is used merely to show the need of team work in the general field of diagnosis.

If the symptoms point to tuberculosis, it is important to know the duration of those symptoms, because if the observations of the roentgenologist are slight or negative, he can rule out tuberculosis with greater assurance if the history is of considerable duration. If the latter is brief,

he will ask for subsequent observations before going on record with a negative diagnosis.

There are certain acute pulmonary infections which closely simulate chronic pulmonary tuberculosis in their roentgenologic manifestations. If the roentgenologist is advised that the onset was sudden, that the duration of the illness has been relatively short, that it has been accompanied by a fluctuating temperature, or that a leukocytosis has prevailed, he will be so on his guard that error may be avoided. His attention will be turned to certain rare types of streptococcal bronchopneumonia, and he may be able to assist the clinician to make a correct diagnosis or to avoid a mistaken prognosis.

F. R., a boy of 13 years, was well until August 24th, when he developed a temperature of 103 degrees. When brought to the hospital on the 26th, physical signs were negative with the exception of a palpable spleen. On September 2nd he was sent to the *x*-ray department with a simple request for an *x*-ray examination of the lungs and the films were studied routinely. A diffuse density through the upper left lung field with localized cone-shaped areas of greater density suggested lobular infiltration. Conclusions were pulmonary tuberculosis.

A subsequent *x*-ray examination, made on September 14th, showed the left lung field practically normal.

The appearance of the left lung field at the first examination resembled that of a chronic tuberculous process. There was no resemblance to an acute tuberculosis, and had it been known to the roentgenologist that the onset was sudden and duration short, he would have avoided this error.

The obvious reply that the clinician, knowing the history, would not accept an *x*-ray diagnosis of tuberculosis is inadequate, since he might have assumed that an acute tuberculosis could produce the changes noted in the *x*-ray films. The final diagnosis was influenzal bronchopneumonia.

It must be borne in mind that, under modern conditions, the roentgenologist sometimes does not see the patient, but is offered only a set of stereoscopic films prepared by a technician. How important it is, then, that he should be supplied by the clinician with significant historical data, clinical history and the clinician's differential diagnosis, as a working foundation for his film deductions.

The writer would like to interject, at this point, a definition of the term "differential diagnosis" and attempt to define his conception of its function. I find, in my experience, that many physicians, and especially those specializing in diagnosis, are most reluctant to go on record with any kind of a tentative diagnostic opinion, until the evidence is all in and appears complete and conclusive. But often the correct diagnosis is made by a process of exclusion, one possibility and then another being ruled out, until but one, the most probable, is left. With the attention concentrated upon this probability, it is usually possible to elicit evidence to conclude the diagnosis by proving its correctness.

The differential diagnosis is simply an enumeration of all of these possibilities, set down in the order of their greater probability. It serves as a means to an end, that end being the ultimate diagnosis, and is in no sense an expression of opinion. It is important that this conception of the differential diagnosis should more generally prevail in the minds of clinicians. Then only can they be induced to start the case upon a sound basis of a working hypothesis.

In many cases, although positive *x*-ray evidence may be lacking, negative findings can serve to rule out some of these possibilities. But the roentgenologist should know what possibilities are in the mind of his clinical co-worker, so that he may specifically state in his report that, in his opinion, certain of the aforesaid possibilities may be ruled out. Let us suppose again that the clinician has in mind the possibility of diverticulitis, but he refers the case to the roentgenologist merely for a gastro-intestinal examination. The latter returns a negative report. A doubt at once arises in the mind of the clinician whether the roentgenologist in his examination has devoted sufficient attention to this question of diverticula. But if the roentgenologist, in answer to the specific question, "Are there diverticula present in the gastro-intestinal tract?" had stated, "There is no *x*-ray evidence of diverticula," the mind of the clinical man would be more at rest on this point.

The age of the patient has an important bearing upon the differentiation of many closely analogous *x*-ray observations. If fluid is found in the pleural cavity, age has a bearing upon the differential diagnosis of tuberculosis and carcinoma. It is of recognized importance in osteitis

fibrosa cystica and Paget's disease, in Kohler's disease, in metastatic carcinoma of bone, in endothelial myeloma and osteomyelitis.

Patients are often referred to the roentgenologist with a simple request for stereoscopic films of the lower lumbar spine. If the clinician would state what specific information he most desired to obtain, and allow the roentgenologist to elect the method of procedure, better results might be forthcoming. Thus chronic low back pain without a history of injury immediately suggests the desirability of raying the entire lumbar spine and of making a special investigation of the fifth lumbar vertebra for a possible spondylolisthesis or some anomaly.

Patients are sometimes referred to the *x*-ray department with a request for a lateral film of the skull when it is the desire of the referring physician to rule out a fracture. In a case of this kind the radiologist should be permitted to select his own procedure, as none would be so bold as to exclude fracture with a single lateral film.

If he is told that the clinical evidence points to a new growth in the region of the optic chiasm the roentgenologist will know at once what procedure will best produce the *x*-ray confirmation of the diagnosis.

A case was recently referred to my department of the Miller Clinic in St. Paul, with a request for an *x*-ray examination of the sinuses. My report stated that all sinuses were negative except the right maxillary which was relatively dense, and that this probably indicated a right antritis. The rhinologist then told me that he had attempted irrigation and had met with unusual resistance. A further study of the original films, with the aid of dental radiographs, revealed the fact that the clearest part of the antrum was near the floor, and that the density was not entirely homogeneous in character. On the strength of this evidence, clinical and radiological, a correct diagnosis of polypsis was made.

While the diagnosis of bone tumor depends largely upon *x*-ray evidence, the latter is often contradictory or inconclusive, and all clinical evidence may be required to avoid serious error in diagnosis and prognosis.

The diagnosis of fracture is usually a simple matter but in the region of certain joints this is not always true. Here the nature and severity

of the injury should be known, and if there is a definite tender point this should be described to the roentgenologist. A case was recently referred to the writer for an *x*-ray examination of the elbow. The films were made by a technical assistant, and presented for interpretation. There was no gross fracture but in the region of the internal epicondyle there was a small osseous body the size and shape of a pea. The condyle itself was apparently intact. A history of the case told me at once that this was of no significance from either a clinical or a medico-legal standpoint, and I was able to render a report of "no fracture."

A common tendency among clinicians is to refer a case to the *x*-ray specialist, with a request merely for a gastro-intestinal examination. But a complete study of the entire tract to rule out every conceivable lesion or functional disturbance which might be *x*-ray demonstrable might require days or even weeks of observation and entail no small expense. Hence, a short cut is the usual procedure and the history and clinical

findings should indicate where to cut. If some functional disturbance of the colon is suspected a barium meal is indicated, but if clinical evidence suggests carcinoma or ulcerative colitis, the enema will often suffice.

SUMMARY

An attempt is made to show the value of close coöperation of clinician with radiologist in the solution of various diagnostic problems. Consideration is given to different anatomical subdivisions of the body, including the skull, the chest, the abdomen and the long bones. The writer advances the suggestion that now, since the pioneer days of roentgenology are no more, and the *x*-ray specialist has proven his right to a "place in the sun" he should be taken more into the confidence of the clinical practitioner, and that these two minds should be made to so coöordinate that they function as one.

The roentgenologist is unselfish in his attitude, and desires no glory greater than that of serving his fellow physician.

PHENYLAMINOETHANOL SULPHATE

The Council on Pharmacy and Chemistry publishes a preliminary report on phenylaminoethanol sulphate which has recently been synthesized, and studied pharmacologically and clinically and proposed for use as a substitute for ephedrine. The A. M. A. Chemical Laboratory examined a specimen of the product used for the recent clinical work and found it to be a pure substance having the composition claimed. Although the Council will await confirmatory reports before accepting the substance for New and Non-official Remedies, it believes that the results already recorded justify further experimentation clinically. To avoid confusion, the Council has adopted the name "phenylaminoethanol sulphate." (Jour. A. M. A., October 6, 1928, p. 1037.)

CLEANING THE "DENTAL AUGEAN STABLES"

For years the dental profession, as the medical profession before it, has had its share of "peddlers" of worthless nostrums and quack remedies. Therefore the recent action of the American Dental Association pointing toward the establishment of a bureau of chemistry for the examination of dental drugs is noted with satisfaction. The American Dental Association will render a public service by exposing many of the worthless "dentrifrices," "mouthwashes," "pyorrhea remedies," and what not purveyed to the public. Equally important and a more fertile field for activity are the so-called ethical remedies. The American Dental Association proposes the establishment of its own council on pharmacy and chemistry. Congratulations to dentistry in its campaign to clear the "Augean stables" of dental *materia medica*. (Jour. A. M. A., October 13, 1928, p. 1113.)

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ARTHRITIS*

JAMES B. CAREY, M.D.
Minneapolis

ARTHRITIS is usually the localization in the joints of some pathologic condition affecting the body as a whole. In other words, most joint diseases are secondary to some infectious or non-infectious systemic condition. There is probably one primary joint condition, progressive fibrous polyarthritis.

From the age, the history and the condition of the joint itself one usually determines to which main group the patient belongs. If he is young and presents painful, swollen joints which he says have bothered him for about a month, or even for six months; if he is obviously sick, pale, under-nourished and perhaps slightly febrile, he undoubtedly is suffering from some form of infectious arthritis. If the patient is a woman older than forty years and complains that her knees are painful, or that her feet, hips or back hurt after she has been standing for some time; if she is a "stylish stout" and has flat feet and knock knees, she is certainly showing the results in her joints of some static or metabolic, rather than infectious, process.

These are the principal guide posts and the two main roads to search for the causative agent. There are many branches and there may be some distances where the two roads travel together, or where different branches cross or join each other, for there are shades, relations and degrees in arthritic diseases, as in any other condition of multiple etiology. An infectious arthritic patient may be ill in bed with a very high temperature and joints so acutely inflamed as to be unable to bear the weight of bedclothes, which is the typical picture of acute rheumatic fever; or the non-infectious patient may be thin, rather than stout, with gnarled and misshapen hands and a stiff back (fixed spine). In either case the two main types hold, infectious and non-infectious.

The non-infectious type comprises those forms of arthritis due to static, mechanical, occupational, metabolic, senile, or neurogenic causes. These are degenerative arthritides. None of

these is benefited by removal of teeth, tonsils, gallbladder, appendix or tubes, which may or may not be infected, but are materially helped by proper orthopedic, dietary or specific therapy.¹

The most common form is known by the old name of *arthritis deformans*.² If one employs this often loosely used term in the original, strict meaning, given to it by Virchow and other early investigators, no difficulty results. Recently some have questioned the basis for this expression and have applied it to almost all forms of chronic deforming arthritis. Others have apparently tried to retain the original meaning, but have implied that part of the etiology for the degenerative changes was an earlier infection which accelerated the process of joint decadence to produce the deformity. Still others have applied the term to the chronic infectious arthritides. Therefore, in view of this obscurity in terminology, it seems better to adopt the expression "degenerative arthritis," applied in 1909 to these non-infectious conditions by Nichols and Richardson.³ This, too, is a descriptive term and subject to criticism, but it will be used in the subsequent discussion.

The disease is not inflammatory. The first changes are degeneration of cartilage, followed by calcification and new growth of osseous tissue. This hyperplasia occurs particularly on the edges of the cartilage to produce the well known spurs, which lead to limitation of motion. The extreme expression of this degenerative form is the senile arthritis generalis, or the hypertrophic coxae senilis. This process may extend to the synovial membrane and produce villous polypoid excrescences. These spurs and villi may, in the large joints and those more subject to trauma, break off and produce foreign bodies, or "joint mice." The Goldthwaite knee, or so-called villous arthritis, is an example of this type of joint. Goldthwaite himself⁴ made certain distinctions between these synovial villi and the other hypertrophic changes, but such distinctions are what have muddled the whole arthritis situation.

On examination the joint is found deformed in various ways, depending upon the location of

*From the Department of Medicine, The Nicollet Clinic, Minneapolis. Read before the 28th Annual Meeting of the Tenth District Medical Society of Wisconsin, at Eau Claire, October 4, 1928.

the joint itself and the length of time the process has gone on. In the small joints of the fingers, for instance, there are enlarged, knobby, bulbous knuckles, while the whole hand is gnarled and crabbed. The knees are enlarged and palpation reveals fine or coarse crepitations. The joints are not tender to pressure or touch, but are so on motion. In other joints, such as hip, elbow, or shoulder, direct examination does not yield so much information, but *x*-ray examination of any joint will show the typical excrescences, spurs, ragged or absorbed cartilage and bulbous deformities. When the hypertrophic spurs cause irritation, there may be small collections of fluid in the joints. The pain results from use of the joint and disappears when the joint is at rest.

When such a joint is found, the patient must be investigated as to the state of his metabolism, the mechanics of his station, and the degree of aging which his other organs show. Many think that this type of joint is an expression of aging of the structures. As will be noted later in connection with the infectious forms of arthritis, the joints, due no doubt to their rather sparse blood supply, are very sensitive to changes in the state of circulation. Even a small degree of arteriolar sclerosis could conceivably produce senile changes in the joint before the condition of generalized arteriosclerosis would be well enough established to be recognizable in palpable vessels, albuminuria, cardiac enlargement, or increased blood pressure. A careful study of the retinal vessels in these cases may shed some light. In many cases actual or premature aging is the only explanation. In others, one finds the individual obese, and the hips, knees or ankles affected. There may, with this obesity, be knock knee or flat foot which has for many years thrown the station off balance and, by the consequent persistent trauma on the weight-bearing joints, produced the condition found. Therapy then becomes a matter of weight reduction and the institution of orthopedic measures to correct the malalignment of the joints.

The changes may result, especially in women, during or after menopause,⁵ from an imbalance of the endocrine functions with consequent obesity and lowered metabolic rate. Hypothyroidism or lowered metabolism is not uncommon, in which case thyroid extract is of benefit. It must be remembered that hypothyroidism may exist at this time of life without obesity, and vice versa.

Carbohydrate intolerance, shown by an increase of the fasting blood sugar or a difficulty in mobilizing sugar, as indicated by the glucose tolerance test, may also be present alone or in combination with either obesity or hypothyroidism, or both. A reduction of the total calories and the carbohydrate of the diet often halts the process. Cecil indicates that a reduction diet and thyroid medication are effective because they reduce weight, even if there is no more specific action. At any rate, as Pemberton has shown,⁶ the joints themselves are sensitive to chemical changes in the blood, particularly to oxygen and glucose. He attributes the improvement in the symptoms in these cases to the fact that reduction diets spare the joint tissues such extra work. The so-called pulmonary hypertrophic osteoarthritis is thought to be the extreme expression of what can happen in a joint when the whole body is insufficiently aerated, due to extensive lung pathology.

The hypertrophic spine changes (spondylitis deformans) often produce painful symptoms as the result of trauma or hard or unusual strain and labor carried over into the later periods of life. In the laboring man or woman it is a question whether the changes are not occupational from the beginning. The type in which the hyperplasia occurs along the transverse processes is likely to be painful from the onset, and until a permanent ankylosis results, due to involvement of the root radicles. The spurs which grow from the vertebral bodies are often symptomless until some trauma causes them to impinge upon surrounding structures. These spinal cases have also given the nosologists some concern and they have attempted to divide arthritic spines into those in which the spine alone is affected called the Von Bechterew type, and the Strumpel-Marie type, which exists with changes in some peripheral large joint also.

These hypertrophic spines are a prolific source of acrimonious debate in the law courts. An elderly individual is taken for a ride and dumped into a ditch by a well-meaning friend, and when the *x*-ray pictures of the sprained back are brought into court, the most extensive spurs and ankyloses are found up and down the lumbar spine. The plaintiff insists, and probably truthfully, that he never had any trouble with his back until the accident, but that after that time he has not been comfortable for a moment. His

medical witness is almost convinced that the accident itself produced all the trouble. It undoubtedly did produce the pain, but it could not and did not produce the spurs on the bodies of the vertebrae. The insurance company, however, has a very difficult time avoiding the payment of damages.

The classic metabolic joint is that caused by gout. This condition is not common in this country. In its most typical form, affecting the great toe, it is not hard to recognize, due to the vivid and accurate description given in both medical and lay literature. At times, however, young individuals present a less acute polyarticular form with fever. The finding of an elevated uric acid blood content, together with the *x*-ray picture, usually establishes the diagnosis in either case. The difficulty lies in the very chronic cases after the urate deposits have caused enough irritation to the joint to produce hypertrophic changes, which by the *x*-ray and outward appearance are very similar to degenerative arthritis. The use of medication to mobilize the uric acid and the restriction of the purines in the food are the therapeutic indications.

Another rare form of arthritis which might be called metabolic in causation is the decalcified joint occurring in the pregnant or nursing woman. These joints are painful and slightly swollen and the *x*-ray shows areas of decalcification at the ends of the bones, usually in the small bones. Marked and immediate benefit results from a milk diet and the addition of large amounts of calcium lactate.

Before leaving the subject of non-infectious joints, mention should be made of syringomyelia and Charcot's joints (neurogenic), the allergic arthritis often accompanying urticaria or the result of protein sensitization, and those ill-defined colloid swellings in the fibrous tissues about the joints of cachectic, nephritic and diabetic patients. All of these are rare and can scarcely be confused with the main types.

Infectious arthritis may be secondary to some known bacterial disease in the patient, or to some focus of infection, or the disease may be a primary infectious arthritis, the exception mentioned in the introductory paragraph. The type of arthritis which is most characteristic of the acute infectious form is acute rheumatic fever. After mentioning this disease, I shall leave it. It is a bacterial disease which affects the joints as

part of its pathologic attack on the body. The prognosis and treatment are concerned not so much with the arthritic phase as with the endocarditis, as the joints usually return to normal on healing.

The diseases most often responsible for an acute arthritis are gonorrhea, scarlet fever, pneumonia, meningitis, dysentery, septicemia, puerperal fever and malta fever. In these conditions there is a localization in the joint of the specific organism. The pathological process usually occurs in the epiphyseal ends of the bones, as would be expected in a blood borne infection, and from there invasion of the surrounding structures continues. There is often exudate which may become purulent. This type is seen in its characteristic form in either gonorrhea or scarlet fever. In the former, it occurs in the second or third week of the infection, or after any recurrence of a chronic lesion.⁷ It may begin as a polyarticular affair, but it soon settles in the knee, ankle, or the small joints of the hand. It is often accompanied by tenosynovitis, which on healing may lead to deformities. Of all the acute invasions of the joint, the gonorrhreal produces the most destruction. It is of the utmost importance to adequately treat the contributing source, which is usually vesicular, but which may also be glandular, prostatic or tubal.

An arthritis in scarlet fever may occur on about the tenth day and simulate a mild allergic swelling, with or without exudation, like that seen in serum sickness. It may occur later, probably due to secondary streptococcal metastasis, in which case it is more like the gonorrhreal joint, and may become purulent. The *x*-ray picture in any of these acute infectious joints is usually entirely negative in the early stages. Later, areas of rarefaction are seen in the epiphyseal ends, which may in time appear like cavities. Bone atrophy will then result.

The arthritic manifestations in malta fever and dysentery are very likely due to secondary streptococcal invasion. Those of meningitis and pneumonia may be due to the specific organism, or may be secondary.

Puerperal fever or septicemia is usually streptococcal and rarely staphylococcal, and produces purulent, surgical joints.

In practically all of these secondary types, except possibly gonorrhea, the joint will return to

normal if the patient recovers from the primary disease.

The chronic secondary joint condition is tuberculosis, and the tuberculous joint disease, like acute rheumatic fever, is a subject in itself.

Next we have to consider the joint disease secondary to focal infection. The picture of this focal arthritis has been very well presented by Cecil and Archer.⁸ The onset may be acute or insidious. Females seem to be more subject to the affliction than males. The average age of onset is about thirty-five years, although in our own experience the majority of patients are younger. The attack, whether it be acute or chronic, is prone to occur after some infectious incident or exposure, or after some debilitating experience, such as confinement or surgical operation. The joints are all affected, one after another, both large and small. This invasion of joints is not only migratory, but also shifting; that is, pain and swelling may leave a joint and after an interval return to the same joint. There is slight fever during the more acute exacerbations and the joints themselves often become distinctly hot and red. The x-ray shows nothing of diagnostic import in the earlier stages, and even in the later stages only disuse atrophy may be seen in those members which have been most continuously affected. The pathology is primarily periarticular and proliferative in character. There are none of the degenerative hypertrophic changes seen in the other types of arthritis, unless the condition becomes so chronic as to extend over into the decadent period of the individual's life. Accompanying the joint symptoms are always bodily aches and pains, neuritic and myositic manifestations from the same focus.

In the more acute forms the condition must be differentiated from rheumatic fever, often a difficult undertaking, and one requiring careful observation over a period of time. Sooner or later the rheumatic joint clears up, and in the meantime the patient may develop a heart murmur. In rheumatic fever other embolic phenomena, such as petechial and subcutaneous nodules, will be discovered.

In the more chronic forms, focal arthritis may be confused with the primary progressive fibrous arthritis, to be mentioned later. The focal cases, however, never have the amount of muscle or bony atrophy found in rheumatic fever, and the joint involvement is shifting and migratory, with

the accompaniment of other body pains. Focal arthritis will be confused with the degenerative forms in only the extremely chronic and neglected cases already mentioned, the age of onset, history and appearance of the joints themselves being much different. When it has become clear that a focal case is being dealt with, the focus, or foci, must be sought. It will be found that the teeth and tonsils are most commonly to be indicted, but a careful investigation of the sinuses and middle ear should also be made. Recently it has been found that the prostate and cervix may harbor the cause. The gallbladder or appendix may be affected, particularly, in our experience, the former. An old chronic bronchitis or bronchiectasis may be feeding the system with organisms and very rarely a chronic pyelonephritis. Whatever the location, the proper steps should be taken to eradicate the primary infection.

During the more active stages, the joints should be kept at rest. The application of heat and the administration of salicylates help to relieve the pain. Often on attacking the cause by tonsillectomy, prostatic massage, cervical cauterization or amputation, the joints temporarily become worse. The prognosis is good for a complete recovery if the cause is found early, before the infection has become established in the joint tissues; in the latter event, there will probably be exacerbations until the infection is overcome by the natural immunological processes, and certain deformities may result. In the more persistent forms, after the original focus has been removed, foreign protein therapy often hastens the action of such defense mechanism.

It is in these more persistent chronic forms also that Pemberton's advocacy⁹ of low caloric and low carbohydrate diet can successfully be carried out. He shows that chronic infectious arthritic patients have a slight lag in their metabolic functions, probably due to the infection. They are slow to eliminate salt and water and have a high blood creatin and a lowered sugar tolerance. All these findings are common to chronic infections, and consequently dietary regulation often helps a great deal. On the basis of further work by Pemberton, the beneficial effects of heat were also proved to be upon a metabolic basis. Arthritics whose body temperature is raised by baking or other methods are much more comfortable. Local heat, therefore, is de-

sirable, as are general bakes, mild massage and exercise and sun baths; in short, anything which will increase the local or the general circulation will mobilize the waste metabolites with which arthritics and infectious cases in general are troubled.

Finally, we come to the primary form, the progressive fibrous polyarthritis which presents itself in two ways, the benign and the malignant. This disease usually attacks young individuals and is, as the descriptive name implies, a progressive, fibrous, periarticular type of polyarthritis. The malignant form kills the patient within a year or two. The individual is cachectic, anemic and febrile to a slight degree. The pathology is in the periarticular structures and attacks the joints one after the other. When it has once involved a joint it does not leave it. There is a diffuse fusiform swelling with much muscular atrophy and the joint gradually becomes ankylosed, due to the fibrous contractions. In the malignant form the onset is more sudden and the course is steadily progressive, until death occurs from inanition and anemia. If the patient can weather the onset, the disease becomes more prolonged, subject to periods of remission and exacerbation, and under proper management he can live as a wheelchair invalid for years. There is no known etiological cause. Certain of these longstanding cases with the ankylosis and deformities produced by the periarticular fibrous changes have been carelessly designated as arthritis deformans, also atrophic arthritis and rheumatoid arthritis, which is confusing, and simply emphasizes the fact that a descriptive term used as a name of a disease is likely to be very generously applied to anything that has a faint resemblance. Certainly these cases have arthritis and they have deformed, atrophic joints, but they present an entirely different picture from the knobby, bony excrescences of degenerative non-infectious arthritis on one hand, and the transiently swollen joints without deformity or atrophy of focal arthritis on the other.

It is an infectious process, undoubtedly, as proved by the appearance of the joints and the state of the patient, but it must be primarily an infection of the joint structures, as removal of all foci has no effect upon the course of the disease, which remains persistently in a joint after the first attack, until the death of the patient. Furthermore, there is usually no initiating

infectious incident and the disease progresses by remissions and exacerbations entirely independently of intercurrent infections, which in this type of patient are extremely rare. There are usually no sources of infection about the individual anywhere, and in those instances where some organ, like the tonsils or appendix, has been removed empirically, no appreciable effect on the joint condition results. In its more malignant form the disease is often accompanied by an iritis which is likewise intractable and progresses to the production of blindness. The malignant, or Jaccoud, form is hopeless.

The benign form, in spite of its being an infectious disease, does not show the metabolic changes that the focal infectious cases show; therefore, we have found it best to put these patients on high caloric feedings with an abundance of minerals and calcium, together with sunshine or Alpine ray, just as we do the tuberculous individual.

In conclusion, the working outline used in this discussion is presented.

ARTHRITIS

Non-infectious:

1. Degenerative Arthritis (osteoarthritis, hypertrophic arthritis)
Due to :
 - a. Menopause in women
 - b. General senile changes
 - c. Static or mechanical factors
 - d. Occupational or direct trauma
2. Metabolic
 - a. Gout
 - b. Decalcification
 - c. Pulmonary hypertrophic osteoarthritis
3. Neurogenic (Charcot and syringomyelia)
4. Special Types
 - a. Allergic
 - b. Toxic (as in tuberculosis during absorption of pleural exudate)
 - c. Colloid (an amyloid-like change in cachectic conditions)
 - d. Hemophilic (really only an exudation in the joint cavity)

Infectious: (Proliferative, atrophic, periarthritic)

1. Acute rheumatic fever, a systemic disease with joint and cardiac localization
2. Primary progressive fibrous polyarthritis
 - a. Benign (rheumatoid or atrophic)
 - b. Malignant (Jaccoud)
 - c. Still's disease in infants

3. Secondary arthritis
 - a. Focal—acute (rheumatoid)
chronic (atrophic)
 - b. Specific
 - Gonorrhea
 - Scarlet fever
 - Pneumonia
 - Meningitis
 - Typhoid fever
 - Dysentery
 - Malta fever
 - Puerperal fever
 - Septicemia
 - Tuberculosis

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EXAMINATION OF THREE CAFFEIN-REDUCED (SO-CALLED DECAFFEINATED) COFFEES

The A. M. A. Chemical Laboratory reports on the caffeine content of the most widely advertised caffeine-reduced (decaffeinated) coffee products. The products examined were: Blanke's Refined Health Coffee, made by the Blanke Health Coffee & Tea Corporation, St. Louis, a coffee extract said to be made by a process which results in caffeine reduced approximately 90 per cent. Kaffee Hag, marketed by the Kaffee Hag Corporation of Cleveland and recently purchased by the Kellogg Co., Battle Creek, Mich., marketed with the claim that 97 per cent of the caffeine has been removed. Sanka Coffee, sold by the Sanka Coffee Corporation, New York, which was recently purchased by the Postum Co., is sold with the claim: "Sanka Coffee Caffeine-free 97%." The Laboratory found the following percentages of crude caffeine content determined by weight in the specimens examined: Blanke's Refined Health Coffee, 3.98 per cent; Kaffee Hag, 0.50 per cent; Sanka Coffee, 0.28 per cent. The Laboratory points out that the claim that a certain per cent of caffeine has been

removed means little if the original caffeine content is not stated. Coffee varied in caffeine content from as little as 0.1 per cent to as much as 7 per cent, though the latter figure is very exceptional. Obviously, without knowing how much caffeine is in the original coffee (which the manufacturers do not state), it is impossible to calculate the amount removed. Further, the figures of caffeine removal mean little because the quantity of coffee used is the factor in determining the amount of caffeine consumed. The Laboratory states that numerous investigators have shown that an ordinary cup of coffee contains from 0.1 to 0.12 Gm. (1½ to 1¾ grains) of caffeine. The Laboratory calculated the amount of caffeine which might be expected to be contained in a cup of coffee made according to directions: Blanke's Refined Health Coffee, 1 grain; Kaffee Hag, almost 1 grain; Sanka Coffee, about ¼ grain. By actual trial following the firm's directions the Laboratory found one cup of coffee made from Kaffee Hag to contain ¾ grain of caffeine and a cup made from Sanka Coffee to contain 0.4 grains. (*Jour. A. M. A.*, September 22, 1928, p. 880.)

INSULIN IN OBSTETRICS*

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Minneapolis

THE course of pregnancy in the diabetic patient presented a gloomy picture prior to the introduction of insulin. New information is steadily accumulating on the subject in the files of physicians who are treating both conditions, but as yet the published cases are few, and consequently the data are incomplete.

In 1926 a summary of the literature, together with two case reports from the Mayo Clinic, was presented by Parsons, Randall and Wilder.¹ Recently, Walker² noted that only four cases of pregnancy and diabetes treated with insulin, including one of his own, had been reported in England. Bowen³ has had five such cases under observation and has followed two patients through two pregnancies each. Walker² was able to collect nineteen cases from the literature, including those mentioned above. Reveno's case,⁴ reported in 1923, was not treated with insulin throughout the pregnancy, but only at the onset of acidosis, which occurred during the eighth month, and which led him to induce labor.

No doubt, many pregnancies are now occurring in diabetic women who, without the aid of insulin, would be doomed to sterility. Pregnancy took place in only three per cent of the diabetic women of child-bearing age observed at the Mayo Clinic¹ for four years; at the Sloane Maternity Hospital it was found in only one out of twenty patients, or five per cent, as observed by Wiener⁵ over a period of six years; in Joslin's experience it occurred only eleven times and in only five per cent of the 427 women studied by Von Noorden.

Formerly, when pregnancy occurred in a severely diabetic woman, the outlook for survival was poor for both the mother and the child. Wiener⁵ reports thirty per cent mortality during labor or immediately post partum, and twenty-one per cent mortality during two and one-half years, because of the increased severity of the disease following pregnancy. Some of the French authors (d'Offergeld, de Vincy)⁶ have found that fifty to fifty-five diabetic women out

of a hundred die during gestation, the puerperium or a few months later. Death of the child at birth or soon after was to be expected in more than half of the cases. Briefly, then, about one-half of the few women who became pregnant died during or soon after the termination of pregnancy, and less than half of the children lived.

The following case of a diabetic woman who has gone through two pregnancies, with no complications except severe insulin shock a few days after delivery, illustrates the change in outlook in recent years, and also raises again the question of variations in sugar tolerance during pregnancy and the puerperium.

On August 12, 1924, a woman aged 27, the mother of one child four years old, presented herself for treatment, giving a classical history of diabetes of two years' standing, including weight loss and periods of amenorrhea. After three weeks in the hospital, where she applied herself with unusual intelligence to the problems of diet and insulin administration, she was discharged on an allowance of protein 40, carbohydrate 50 and fat 115 (1,395 calories) and 20 units of insulin daily. This was soon increased to protein 45, carbohydrate 85, fat 130 (1,690 calories) and 25 units of insulin.

She has continued the same diet since that time and has varied her insulin according to the presence or absence of sugar in the urine. She has managed her diabetes entirely without medical advice, coming for blood sugar determinations only when requested to do so at rare intervals. Her weight gradually increased and she menstruated normally two months after leaving the hospital, having previously missed five periods.

In March, 1926, one and one-half years after the institution of treatment, she came to the Nicollet Clinic and was found to be six months pregnant. The consciousness of fetal movements was her first intimation of this condition, for she had interpreted her amenorrhea as a diabetic manifestation and had continued in otherwise excellent health and normal weight. She carried on the management of her own case, and on July 3, 1926, she was delivered of a healthy child in the automobile on the way to the hospital. She placed herself under the care of her family physician and remained in the hospital for ten days, managing her own diet, insulin and urine tests.

During her pregnancy her insulin requirement varied from month to month, although her food intake remained constant. For four months prior to the beginning of pregnancy she found it necessary to increase

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her daily insulin to 40 units, instead of the 25 units which had previously kept her sugar-free. On December 18, when she was two and one-half months pregnant, she cut the insulin dosage in half, taking 20 units daily for one month. It was increased to 40 units for the next three months (fourth, fifth and sixth months of pregnancy, approximately). It was gradually increased to 50 units, at which dosage she continued for the last six weeks and for three days after delivery. On the third day post partum she experienced a feeling of weakness similar to the mild insulin shocks which had occurred previously, lost consciousness and did not awaken for four and one-half hours. The nurses reported that the attack started with a chill, that she took orange juice, ate food, moved about in bed and answered when spoken to, but the patient remembered nothing of this.

She reduced her insulin, taking 25, 15, 20, 25 and 30 units on consecutive days, and left the hospital ten days after delivery. Two days later, while nursing the baby, she again had a period of weakness and loss of speech which lasted for two hours. She attributed the attack to the fact that she had forgotten to eat her midday meal.

She remained sugar-free on a daily allowance of 32 units of insulin and continued to nurse the baby for three months. Five months after cessation of lactation she again became pregnant. During this pregnancy there were no variations in tolerance. After delivery, which occurred on December 2, 1927, seventeen months after her previous delivery, she reduced her insulin to 20 units, from the 32 units taken during pregnancy, but found sugar to be present in the urine constantly. At the end of ten days she returned to her previous dosage. Her milk supply was inadequate and she weaned the baby after two months, soon after which normal menstrual function returned.

Having observed this patient through two successful pregnancies with no apparent damage to her sugar tolerance, it seemed important to survey the fate of other similar cases, for the purpose of comparing statistics with those of pre-insulin days. Three important questions were considered: (1) What is the outlook for maternal survival? (2) What is the outlook for fetal survival? (3) What changes in sugar metabolism, maternal and fetal, can be expected during and subsequent to pregnancy?

Twenty-six pregnancies, occurring in twenty-three patients with diabetes, have been found in the literature. Two of Bowen's cases⁸ were observed through two pregnancies, as was the case reported herewith. These cases have been analyzed from the standpoint of outlook for fetal survival and of outlook for maternal survival and health. Most of them have been treated with insulin throughout pregnancy, and in only a few

cases has insulin been instituted merely as an emergency measure during labor.

OUTLOOK FOR FETAL SURVIVAL

The outlook for survival of the fetus is still far from hopeful. In the twenty-six pregnancies, death of the child occurred eleven times, or in forty-three per cent of the cases, five times in utero, and six times shortly after birth (from eight hours to five days). The reduction from the high mortality rate of the pre-insulin cases is not enough in so small a series of cases to be significant.

Over-development of the fetus is apparently common in the diabetic mother. In Bowen's six cases⁸ born at term, three weighed ten pounds or over and one weighed nine pounds. Development was equivalent to full-term in Kaufmann's case,¹⁰ although the child was born seven or eight weeks prematurely. Ehrenfest¹¹ and Labbe¹² cite a case reported by Dubreuil and Anderodias in which the child of a diabetic woman weighed 5,000 grams, although born one month prematurely. The Islands of Langerhans were markedly hypertrophied, as were those in the case of Gray and Feemster,¹³ which died five days after birth, presumably of a hypoglycemia. Lesions were found in the pancreas of both mother and child in Ambard's case.¹ Hydramnios is considered a frequent complication in diabetes with pregnancy, but is mentioned only once in the above twenty-six pregnancies.

OUTLOOK FOR MATERNAL SURVIVAL

Only four mothers of the twenty-three died near the time of delivery, giving a mortality rate of seventeen per cent (or fifteen per cent, considering each pregnancy as a separate hazard). This compares favorably with previous figures, which varied from twenty-seven per cent (Whitredge Williams) to fifty or fifty-five per cent (d'Offergeld and de Vincy, quoted by Henneberg and Bickel).⁹ The twenty-three collected cases probably represent patients with a more severe form of diabetes than the series reported by earlier authors, for without insulin many of them would have failed to conceive or would have suffered early abortions.

CHANGES IN MATERNAL TOLERANCE

Information as to variations in tolerance is available in comparatively few cases. The phenomenon seen in Carlson's dogs^{7,8} in which the

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TABLE I

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| Kaufman ¹⁰ | Patient died fifth day after delivery. Acidosis. Hypoglycemia third day postpartum. Child lived. Fully developed, though 7 to 8 weeks premature. |
| Henneberg and Bickel ⁶ | Patient lived. Child died in utero. |
| Labbe and Couvelaire ¹² | Patient lived. Tolerance improved after delivery. Child normal. |
| Gray and Feemster ¹³ | Patient died fifth day after delivery; toxemia of pregnancy. Tolerance improved during last month. Child died fourth day after birth. Hypoglycemia. Hypertrophy and hyperplasia of pancreas. |
| Ambard (Quoted by Parsons ¹) | Patient died. Child died 23 hours after birth. Child was diabetic and pancreatic lesions were reported in both mother and child. |
| Wiener ⁵ | Patient lived but tolerance decreased after delivery. Child died in utero. |
| Soler ¹⁴ | Patient lived. Tolerance improved after delivery. Child normal. |
| Ehrenfest ¹¹ | Patient lived. Tolerance increased after delivery. Hypoglycemic reaction second day. Child normal. |
| Reveno ⁴ | Patient lived. Tolerance increased after delivery. Labor induced in eighth month. Child died 16 hours later. |
| Parsons ¹ Case I | Patient lived. Tolerance unchanged. Hypoglycemic reaction second day. Premature birth. Child lived. |
| Parsons ¹ Case II | Patient lived. Tolerance increased during pregnancy. Child normal. |
| Bowen ⁸ Case I | Patient developed acidosis. Recovered. Tolerance increased after delivery. Child normal, weighed over 9 pounds. |
| Bowen ⁸ Case I Second pregnancy | Patient developed acidosis. Recovered. Tolerance unchanged afterward. Premature birth. Child died 8 hours later. |
| Bowen ⁸ Case II | Patient died two hours after delivery by cesarean section. "Toxemia of pregnancy." Child died in utero. Weighed 10 pounds. |
| Bowen ⁸ Case III | Patient lived. Tolerance unchanged. Child normal. Weighed 6 pounds. |
| Bowen ⁸ Case IV | Patient lived. Tolerance increased after delivery. "Sensitive to insulin" during pregnancy. Hydramnios. Child weighed 10 pounds. Died 8 hours after birth. |
| Bowen ⁸ Case V First pregnancy | Patient lived. Required 70 units insulin during pregnancy. Delivery at seven months. Child died of jaundice three days later. |
| Bowen ⁸ Case V Second pregnancy | Patient lived. Insulin requirement increased from 70 to 96 units during pregnancy and fell to 50 units after delivery. Child died in utero and was delivered at five months. |
| Stansfield ¹⁵ | Patient lived. Tolerance decreased during pregnancy but improved afterward. Labor induced at eight months. Child lived. |
| Graham (Reported by Walker ²) | Mother and child both lived. |
| Lambie (Reported by Walker ²) | Patient and child both lived. Tolerance improved after delivery. |
| Walker ² (Reported from Queen Charlotte's Practice of Midwifery) | Patient and child both lived. |
| Peters (Quoted by Parsons ¹) | Patient lived. Tolerance improved after delivery. Labor induced at eight months. Child lived. |
| Walker ² | Patient lived. Acidosis at time of delivery but tolerance improved later. Refused diet and insulin and died one year later. |
| Hansen First pregnancy | Patient lived. Tolerance decreased during pregnancy but improved after delivery. Hypoglycemic reaction two days later. Child normal. |
| Hansen Second pregnancy | Patient lived. Tolerance unchanged during pregnancy and afterward. Child normal. |

fetal pancreas was thought to prevent diabetes in the mother, seems to be infrequent in the human patient. Gray and Feemster's case¹³ improved in tolerance during the ninth month. One of Parsons'¹ improved during pregnancy, and the case reported herewith improved during the third month of one pregnancy, but required a gradually increasing amount of insulin after that.

Ten of the patients required less insulin after delivery than immediately before, and Wiener's patient⁵ is the only one who was observed to have a gradually falling tolerance throughout the pregnancy as well as for four months afterward, while she was under observation. As a rule, the tolerance was unchanged or improved after the puerperium.

Postpartum hypoglycemic reactions were recorded six times, three times on the second day and once on the third day, and in two cases the time was not recorded. Insulin was reduced rapidly in others, thereby preventing reactions.

ANIMAL EXPERIMENTS

Considerable experimental work has been done in an effort to analyze the metabolic changes occurring in the pregnant diabetic patient. Carlson and his co-workers in 1914 and 1915^{7,8} produced diabetes experimentally in pregnant dogs by removing the pancreas. If this was done late in pregnancy, within two or three weeks of term, corresponding to the seventh month in the human patient, the expected hyperglycemia and glycosuria did not occur as long as fetal life continued and the placental connections remained intact. At the onset of labor the maternal blood sugar began to rise and severe diabetes was established by the completion of delivery. The fetal pancreas was thought to take the place of the mother's.

Markowitz and Soskin⁹ found that female dogs, depancreatized before or during pregnancy, and carried to term by means of insulin, usually secreted no milk and were free from hypoglycemia after delivery. Those that suckled their pups became hypoglycemic, suggesting that the withdrawal of blood sugar for the synthesis of lactose was responsible for this condition. It is stated that milk-fever in cows is due to a hypoglycemia, and can be cured by injecting air into the udder, thus stopping the secretion of milk and permitting the blood sugar to return to normal.

COMMENTS

It would seem that, with the present methods of treating diabetes, a larger number of severely diabetic women are becoming pregnant than heretofore. The prognosis for survival is much improved since the use of insulin, but if a diabetic woman becomes pregnant she must be kept under unusually strict medical observation. Acidosis and coma may develop without warning and labor may have to be induced as a life-saving measure, even though insulin has been given in adequate amounts. Hypoglycemia may occur during the first few days of the puerperium and the maternal tolerance is likely to rise very promptly after delivery. The outlook for fetal survival has not kept pace with the improving maternal mortality figures.

More blood sugar studies in both the mother and the child, and more autopsy examinations, with special attention to the pancreas, will gradually increase the available knowledge, and may lead to means of reducing the strikingly high mortality figures.

Cases of diabetes and pregnancy must be much more common than a search of the literature would indicate, and the publication of reports would be of distinct value in managing and treating this poorly understood group of patients.

SUMMARY

1. Two normal pregnancies occurring in a diabetic woman under insulin treatment are reported.
2. Twenty-six pregnancies in twenty-three diabetic women treated with insulin, including the above case, have been reported in the literature.
3. The maternal mortality rate was seventeen per cent, and the fetal mortality rate forty-three per cent.
4. Hypoglycemia following delivery occurred six times. Other variations in sugar tolerance often occurred during pregnancy without rule or warning. Insulin dosage was reduced in many cases after delivery, and in only one case was there a progressive increase in the severity of the diabetes after the cessation of pregnancy.
5. More case reports and more detailed studies are needed in an effort to deal properly with this serious combination of conditions.

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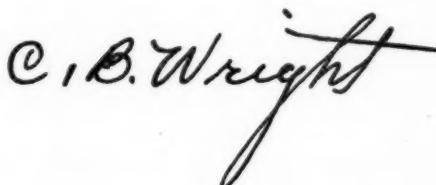
President's Letter

SOME twenty-five years ago an ambitious young surgeon did a radical operation on a patient for cancer. After the operation he came to the conclusion that his diagnosis was wrong. He decided that if possible this should not happen again. He closed his office and spent two years studying in the great medical centers of the world in an endeavor to learn how to recognize malignancy. This man is today a leading surgeon in the state and a recognized authority on malignant growths. This typifies the spirit of scientific medicine —to recognize our weaknesses, both individually and collectively, and be willing to make real sacrifices to correct them.

The year is ending and this is an excellent time for each one of us to ask himself the question, "What have I done in the past year to improve my own efficiency?" and also, "What have I done to better the medical profession in my community?"

In the past year the officers of the State Association have visited practically every Society in the state. We have been impressed with the genuine enthusiasm for scientific medicine in the great majority of medical men, particularly in the smaller societies. We need, however, still more thoughtful effort toward making the practice of medicine a co-operative community concern. This is a fast moving age and if we would keep up we must do it by better team work and a larger view of our responsibilities. I like to picture the future State Medical Association as a financially strong corporation directing the economic and educational development of all the members and promoting and directing Public Health activities in the state along lines of greater efficiency at a minimum cost.

In conclusion may I wish every member "A Merry Christmas and a more Prosperous and Happier New Year."



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EDITORIAL

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Vol. XI DECEMBER, 1928 No. 12

Arthur Sweeney

Occasionally nature combines certain precious elements in creating a rare personality that will, while on its way, bring a little brightness into this world; whose activities will enrich the lives of many and who, on finally reaching journey's end, will leave behind a path of achievements, brightened with rare friendships and the love and esteem of many.

Arthur Sweeney came to St. Paul in 1887. He immediately assumed a place of leadership among the rugged and virile profession of those days. From 1893 he limited his professional activities to neurology and psychiatry, and he soon

advanced far in those fields. However, he was not confined to medicine. His activities were many sided. He was one of the principal founders of the St. Paul Institute and the Informal Club, whose activities he directed until his death November 7, 1928. Art, natural history and museum problems were his hobbies. He extended the activities of the Institute over the entire city, so that it would come in touch with and benefit the common people. He created and maintained through the Institute the only night schools where employed young people could obtain an accredited high school education. In the early days as secretary of the State Board of Medical Examiners, he was a power in forcing and obtaining higher standards of medical education. His fame in medico-legal fields is common knowledge.

Many were the elements of his character. A benevolent Celtic ancestry had endowed him with rare wit, subtle humor, and a magnificently resonant voice. His mind was rugged. His tastes were simple. His kindness and good fellowship were proverbial. He was especially a friend of the young doctors. Unsolicited and unknown he has, times without number, gone out of his way to help the young man in the struggle of his profession. His writings, although not profuse, were timely and far above the usual medical articles in value as to content and especially in literary merit. His last article* has been compared to Stevenson's "Apology for Idlers" and proclaimed fully equal to it as a literary achievement.

During the war he was one of the first to offer his services. Declined twice by medical boards because of his age and an irregular heart, he nevertheless immediately got into service as a contract surgeon. He was in charge of the psychiatric division at Camp Dodge. From testing thousands of soldiers he was probably one of the first in this country in arriving at the lesson to be learned in applying this knowledge to civil problems. This interest led him into the fields of immigration. He wrote

*The Single-Track Mind. MINNESOTA MEDICINE, October, 1928.

many articles in the popular magazines to create public interest, and he was one of the main factors in supplying Congress with proper data and advice in forming the present Immigration Law.

He was noted as a speaker; his wit, humor and wonderful voice has saved many a medical banquet during the past forty years. He was generous almost to an extreme. He was courageous. He loved the battle of keen cross-examination in court. Many is the time he brought woe to those lawyers who delighted in "toasting" the doctors on the witness stand.

Words are a poor medium in portraying him. He has left us a memory that is precious. He has gone to his friends, among them the pioneer physicians, Boeckmann, MacLaren, Sneeve and many others, to rightfully take his place. Such a man was Arthur Sweeney.

GEORGE N. RUHBERG, M.D.

The General Practitioner

Two harsh sayings recently made anent the shortcomings of the practicing physician are worthy of the attention of the general practitioner. The criticism made to the Medical School Committee by the Dean of a medical school must rankle in the mind of many a physician. The Dean wrote that the ordinary doctor would like, if possible, to hold practice stationary at the level for which he was trained and intimated that he was at least a decade behind the times. This saying might be discounted, but it finds support from Dr. Fishbein, who states that from his experience it takes at least ten years for discoveries to filter down to the general practitioner.

The implication would seem to be that means of keeping adequately informed are lacking or that they are not made use of.

The general practitioner has been accused of attending in but scant numbers the excellent short courses offered by the University and of failing to give much support to the lately professed extension courses, although there are signs of their gaining in favor. He has been accused of not attending medical meetings. He has been accused of reading medical articles by

title if at all. He has been accused even of deriving his knowledge of advances in medicine from the agents of drug and instrument houses.

Sweeping indictments are usually much exaggerated, but attendance upon the recent A. M. A. meeting, a survey of its scientific exhibits and the reception, later, of instruction during a series of lectures by specialists, strengthen the uneasy impression that Dr. Fishbein and the Dean have at least some grounds for their contentions.

From the practitioner's standpoint the above mentioned means of keeping up with the times have to be critically examined to see if they warrant the expenditure of the necessary money and time.

Turning to his library proper he finds several difficulties. Again considerations of money and time enter. Books are expensive; many are out of date before they come from the publishers.

If book-reviews are depended upon, his shelves are apt to become cluttered up with volumes that have failed to make an appeal. Consultation of books consumes time for the extraction of desired information and the piecing together of a consensus of advice. The book indexes are often poor.

The additions to loose-leaf systems do indeed intimate that there is something new embedded in the reformed pages—to be dug out by comparison with the material replaced.

The year-books contain large amounts of material of little interest to the practitioner, while matter that is of interest is treated of in insufficient detail.

Let us assume that the physician was—at one time—last month, last year, last decade—up-to-date in his knowledge of medicine. If a compiler and a publisher of sufficient courage to undertake a book of unusual format could be found, it might well be possible to get out a book that the practitioner would buy and read and that would conserve both his time and money. It should be a book based on the assumption of a complete knowledge of medicine of ten years ago, and should leave out all description of that state of knowledge. It should confine itself strictly to setting out—for practical use—the advances made during the preceding decade.

The book should describe in minute detail any

new procedure likely to be of use to the general practitioner. It might be of the loose-leaf kind and might use more than one size of type. Marginal letters and numbers could be used to show to what extent any procedure or treatment has been accepted and whether it is rising or declining in favor.

H. B. A.

Periodic Examinations

It was Dr. Burnside Foster, of Saint Paul, who first proposed a definite plan for the periodic examination of life insurance policy holders. The suggestion made in April, 1909, to the Association of Life Insurance Presidents apparently was seed sown in fertile soil. As the value of the procedure expressed in dollars has become manifest, insurance companies have stepped into line in using this method to cut down their mortalities.

If periodic examinations are worthwhile to insurance companies they are worthwhile to the laity as a whole. The publicity given the idea by insurance companies, the Life Extension Institute, lay periodicals and of late the Gorgas Memorial Institute has resulted in some twenty million routine examinations last year, according to an estimate by Dr. Franklin Martin, president of the American College of Surgeons.

In Dr. Martin's inaugural address before this college in October the plan for a "Health Inventorium" was described and was apparently awaiting adoption by the College. The detailed plan in brief is quoted for the information of our readers:

1. Every standardized hospital shall furnish an examining room or rooms, to which any legalized practitioner, who is a member in good standing of his respective county medical society and the American Medical Association, may bring a patient for examination. There shall be no charge for the examining room.

2. The hospital shall furnish to the practitioner every facility in the way of aids, consultants when necessary, laboratory tests, etc., as will insure a comprehensive audit of his patient's condition.

3. The charge for the required laboratory tests shall be nominal, and a maximum of actual cost.

4. The physician shall render to the patient a bill covering his fee for the examination, and where there is a charge for laboratory services he shall be responsible to the hospital for its payment.

5. No hospital shall accord these facilities to any

individual who is not accompanied by his or her doctor, or who does not carry a letter from his or her doctor in which certain services are requested.

6. An individual who applies for an examination and who has no physician should be referred to a duly appointed, disinterested committee consisting of a representative or representatives of the county medical society and the standardized hospitals of the community, and this committee shall advise the patient in the selection of a physician.

7. Except in dire emergency, no hospital shall treat a patient who was examined in the Health Inventorium, except by request or consultation with the referring physician.

Certain objections present themselves from even a casual perusal of the plan. Confusion is liable to result from placing the facilities of a hospital at the disposal of any member of the county medical society. If such a proposal is feasible, why not abolish hospital staffs? If the proposal as a whole meets with much response the hospital laboratories are likely to be taxed with work on a cost basis and any profit to the laboratory from work from without the hospital is likely to be *nil*. Paragraph 4 is somewhat ambiguous. Shall the physician pay the hospital laboratory if the patient doesn't or shall he include the amount of the laboratory fee in his statement to the patient? The latter interpretation would certainly present opportunities for splitting fees.

Physicians have different ideas about the way to conduct a practice. For those who are consulted at a hospital the logical place for them to conduct health examinations is at the hospital. If the usual private office is efficient for examining sick individuals, it certainly is equipped for periodic examinations.

It is a fact that certain physicians, specialists particularly, are not interested in making so-called health examinations. The point of view in making these examinations is somewhat different but the main difference lies in there being little or no "present complaint" with these patients. The examination itself is no more extensive than most patients are entitled to when calling on a physician of any kind. Special investigation should be carried out in either case as leads indicate.

It seems safe to predict that periodic examinations will continue to increase in number but the routine use of hospitals for this service is not likely to prove popular with either patient or physician, at least in this part of the country.

Historical Committee

Are you interested in the history of medicine in Minnesota? Do you know who the man is whose portrait we here present? Do you know that a committee of this association is collecting material for a History of Medicine in this State? Will you help us in obtaining information as to the men who have made medicinal history in



your town, city or county? The committee, of which Dr. H. M. Workman of Tracy is secretary, would be glad of your coöperation. The man whose portrait we show was Dr. Samuel Willey. He came to St. Paul in 1852 and was elected President of our present State Medical Association at its organization in 1869.

A Minnesota State Medical Society was organized in 1853. Would you be interested in knowing who the men were who organized these societies and what became of them? Did you know that one of the men who helped form our present State Association is still living? Will you coöperate with us in obtaining information on the progress of medicine in Minnesota? Let us hear from you. Next month, if you are interested, we will tell you who was the first physician to come to Minnesota to practice his profession.

J. M. A.

MISCELLANEOUS

THE AMERICAN PUBLIC HEALTH ASSOCIATION WITH ITS ALLIES

The American Public Health Association has received an invitation, headed up by the Hennepin County Public Health Association and supported by a notable group of institutions, to hold its annual meeting of 1929 in the City of Minneapolis, after an interval of thirty years absence.

The sponsors of this invitation are: The State of Minnesota; The City of Minneapolis; The University of Minnesota; The University Medical School; The Minnesota State Board of Health; The Minnesota State Medical Society; The Minnesota Public Health Association; The Minneapolis Civic and Commerce Association; The Hennepin County Medical Society; The Hennepin County Public Health Association; The Hennepin County Sanatorium Commission; The Hennepin County Tuberculosis Association; The Minneapolis Board of Public Welfare; The Family Welfare Association; The Children's Protective Society; The Woman's Club of Minneapolis; The Visiting Nurse Association; The Minneapolis Department of Public Health; The Minneapolis Council of Social Agencies; The Woman's Co-Operative Alliance; The Hennepin County Child Welfare Board; The Council of Jewish Women; and The Infant Welfare Society.

Dr. A. J. Chesley, of the State Board of Health, Dr. Francis E. Harrington, Health Commissioner of Minneapolis, together with Dr. Richard Olding Beard, of the Hennepin County Public Health Association, brought back from the Chicago meeting of the National health body the unanimous acceptance of the Minneapolis invitation by the Governing Council. The support of the invitation by Dr. Benjamin F. Simon, Health Commissioner of Saint Paul, is very gratefully acknowledged.

The American Child Health Association has been invited to unite in joint session with the older organization, as it did at the Chicago meeting in October.

The newly organized International Society of Medical Health Officers, of which Dr. Francis E. Harrington has been elected President, will hold its first annual meeting in 1929 during the days of the Convention.

Conjointly, the third Northwest Conference for Child Health and Parent Education is to be planned for a brief, but for as choice a program as it has so successfully supported in the past two years. It is proposed that some form of permanent organization be effected at that time.

It is hoped that the Minnesota State Public Health Association, the State Sanitary Conference, and the State Organization for Public Health Nursing will consent to hold their annual sessions coördinately with the program of the National Body.

Still another coincident event will be planned for the occasion. The new pavilion on the Medical Campus of the University for the occupancy of the Department of Preventive Medicine and Public Health, its Division of Public Health Nursing, and the Student Health Service will be finished at this time and the American

Public Health Association is invited to participate in its dedication.

A new project is proposed for the Minneapolis meeting of the American Public Health Association, in the form of a special educational health exhibit and program to be presented during the entire session.

This will be in addition to the usual scientific and commercial exhibits staged from year to year. Successfully established, it will be maintained as an annual performance by the Association and kept continuously up to date. Naturally, it will especially center about the whole problem of child development. In connection with it, model clinics for infant, pre-school and school child study and betterment will be set up and conducted during the session.

Minneapolis and the Northwest are fortunate to have this opportunity of initiating a great educational project.

Mr. Holmer N. Calver, Executive Secretary of the American Public Health Association, and his Staff have visited Minneapolis and have been in conference with its health representatives for several days during the past month.

RICHARD OLDRIDGE BEARD.

MINNESOTA HOSPITAL AND HOME FOR CRIPPLED CHILDREN

On Nov. 10, 1928, on the Hospital Quadrangle of the University of Minnesota, with simple and impressive service, the corner stone of the Minnesota Hospital and Home for Crippled Children was laid before a large and distinguished audience. This building, which will form a new unit to the present University Hospital, has been made possible by the gift of two million dollars given by the Honorable William Henry Eustis, former Mayor of Minneapolis.

The Honorable Fred B. Snyder, President of the Board of Regents, presided. Music was furnished by the University of Minnesota Military Band. Invocation was given by Reverend J. S. Bushnell, Pastor of the Westminster Presbyterian Church. Addresses were delivered by Dr. Lotus D. Coffman, President of the University of Minnesota, Dr. E. P. Lyon, Dean of the University Medical School, and Dr. Charles H. Mayo, Rochester.

Mr. Snyder in opening the ceremonies traced the life of Mr. Eustis, who was crippled when he was fifteen years old, and deprived of his physical fitness for manual labor. He devoted his life to the development of his mind, graduating from the Law Department of Columbia University, New York.

In the year 1881, Mr. Eustis left his native state, New York, and came to live in Minneapolis, where his interest in public, civic, and philanthropic affairs made him an outstanding leader.

In the year 1923, Mr. Eustis sent for members of the University of Minnesota Board of Regents, and stated that for many years it had been in his mind that, if he acquired enough money to make it worth while, he would donate it to the use of Crippled Children. In offering the gift to the Board of Regents, he desired the University to have full control of the funds.

The object of the gift is to enhance the well-being of crippled children, and he suggested for this trust the name, "Minnesota Hospital and Home for Crippled Children." However, Mr. Eustis did not want the world crippled to narrow the activities of the staff, but rather to include a child with defective heart and lungs, who is as much incapacitated as one with deformed limbs.

A luncheon was served for the speaker and honor guests in the hospital after the ceremonies.

CHRISTMAS SEALS

Eight thousand four hundred and ten men, women and children.

This might represent the population of one of Minnesota's cities—but it does not. It represents the victims of tuberculosis in the state in the past five years.

There is nothing new about tuberculosis except its victims. Year after year, quietly, insidiously, it exacts new tribute in human lives, desolated homes, and frustrated dreams and ambitions.

And who are its victims? More than one-fifth of the 8,410 people who died in Minnesota in the past five years from this disease, were between the ages of fifteen and twenty-four. To strike at the youth of the country at this age period when parents should begin to realize on the investment of rearing and educating its young men and women means a tremendous loss to home and state.

It is to the girls and young women that tuberculosis is the greatest menace, statistics show. Between the ages of fifteen and nineteen years, more than twice as many girls died in the five-year period as boys. While in the twenty to twenty-four year period approximately 30 per cent more deaths occurred among women than men.

Tuberculosis deaths in general have been cut almost in half in Minnesota in the twenty years the Christmas Seals have been at work. But as long as the disease continues to strike at our young manhood and womanhood with such dire results, the tuberculosis fight is far from finished.

Christmas Seals, now on sale, furnish the ammunition to carry on this work. The greatest hope lies in prevention through education, and this is the work of the penny stamp.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

The Minnesota State Board of Medical Examiners reports the following prosecutions for practicing medicine without a license and for violations of the Basic Science law in so far as the Basic Science law covers the practice of medicine and surgery:

Williams, Boyd (Minneapolis)—Entered a plea of guilty, fined \$100.00.

Vian (Vian Medical Institute, Osakis)—Claims to be champion of the world on cancer. Entered a plea of guilty, fine of \$250 and if not paid is to serve eight months in the county jail. Fine paid.

McGraw, Robert (Hewitt, Minnesota)—Filed a complaint under the Medical Act charging the defendant with treating one Peter Thompson, a farmer living west of Villard, for heart trouble. The fee alleged to have been paid was \$35.00. The defendant entered a plea of not guilty and after a preliminary hearing he was bound over to the district court for trial. The state presented its case and at the completion of the same the case was dismissed by the Court. The dismissal took place June 22, 1928, at Glenwood, Judge Flahery presiding. The defendant is an old offender, having been arrested four times in Todd County for various offenses.

Kolling, A. J. (Minneapolis)—Licensed chiropractor, entered a plea of guilty to a violation of the Medical Practice Act for attempting to treat syphilis. Fined \$150 or 30 days in jail. Fine paid.

Stolurow, Peter J. (Hamm Bldg., St. Paul)—Licensed chiropractor, arrested for performing an illegal operation; entered a plea of guilty. Sentenced to imprisonment in the State Prison at Stillwater at hard labor according to law, which means up to four years imprisonment.

Schultz, Pauline (Hamm Bldg., St. Paul)—Licensed masseuse, charged with the crime of abortion. Jury trial. Found not guilty.

Errington, Robert (Bellingham)—Unlicensed practitioner, known as Kanawana, the Indian Doctor. Early in 1927 found guilty by a jury of practicing medicine without a license and fined \$100. In April, 1928, two complaints were filed, one charging him with a violation of the Medical Act and one charging him with a violation of the Basic Science Law. June 20, 1928, he entered a plea of guilty to the charge of violating the Medical Act and was sentenced to 6 months in the county jail at Olivia, 5 months of the sentence being suspended on the condition that he refrain from practicing. After Errington was sentenced he made an attempt to escape his jail sentence by withdrawing his plea of guilty; in this he was not successful and as a result he entered the Renville County jail August 27, 1928, and left on September 27, 1928. The charge to which he entered a plea of guilty involved his taking \$250 from a farmer north of Bird Island, for which sum he was to "cure" the farmer's wife of "heart dropsy." The woman died within 60 days after the initial treatment from Errington. Errington is out on \$1,000 bail in second case. Court convenes in December.

Ewald, Emilie D. K. (Olivia)—Naturopathic physician. Has no license of any kind. Investigated June 1, 1928, and because of her plea at that time to be given a chance to move out of the state, no complaint was filed. She did not leave, however. August 16, 1928, two complaints were filed, charging Mrs. Ewald with maintaining an office for diagnosis, treatment, etc., of ailments, and a complaint charging her with using a word or words indicating that she was engaged in the healing art, to wit: "naturopathic physician." After a preliminary hearing she was held to District Court under bonds of \$1,000. On September 29, 1928, Mrs. Ewald entered a plea of guilty to main-

taining an office, etc., in violation of the Basic Science Law and she was sentenced by the Court to 30 days in the Renville County jail; the sentence was suspended indefinitely on the condition that she refrain from practicing in Minnesota and that she leave the state. If Mrs. Ewald attempts to practice healing in this state she will not only be punished for second offense but she will have to serve jail sentence above imposed.

Koskimaki, W. W. (New York Mills)—Has no license of any kind, but has taken the massage examination and failed. According to information filed, he was practicing at New York Mills. Complaint was filed for a violation of the Basic Science Law and a warrant issued for his arrest. The deputy sheriff reported that the defendant had left town when he went to arrest him. Koskimaki returned to New York Mills, however, and was arrested. Released upon cash bail of \$500. Case dismissed on defendant's promise to leave the state permanently, which he did.

Kirby, S. R. (Thief River Falls)—Promised to close his place of business in letter written to County Attorney of Pennington County.

Dufort, J. E. (Northome)—Admits violation of the law. Took the matter up with the County Attorney. Dufort given until the first of August, 1928, to close his place of business.

Miller, Royal (Austin-Albert Lea-Worthington)—Itinerant unlicensed "healer," whose home is at Clear Lake, Iowa, so he says. His work is a semi-massage and chiropractic treatment. Informed that after he works on a patient he washes his hands and the water becomes blue, red or some color and he tells the patients that he has drawn off that poison. Miller admitted violating the Basic Science Law. The county attorney after a little talk with him told him to get his hat and coat and get back to Iowa just as fast as he could get there and to stay there.

Beach, Mrs. Frank (Springfield)—Investigated the practice of this woman and found that she had treated a diabetic patient who lives on a farm about 16 miles from Springfield in Redwood County. The patient was interviewed at her home and after obtaining the evidence a complaint was filed and a warrant issued for her arrest. Mrs. Beach has been living at the hotel in Wanda, a little town about 17 miles from Redwood Falls. She had advertised in the papers at Springfield and Redwood Falls. She is an Indian Root and Herb Doctor. She wanted \$100 from the patient, but she received only \$25. When the sheriff went over to Wanda to arrest her she had left with her husband. Evidently she had been "tipped off" the previous evening. If Mrs. Beach is apprehended she will be prosecuted to the full extent of the law.

Ross, Charles, alias R. J. Dietrich (Pine River)—The name of Dr. R. J. Dietrich, a reputable physician now practicing in Kansas, was assumed by Ross. Thereafter he attempted to operate a hospital at Pine River. His place of business was closed August 15, 1928. He has left the state.

The foregoing report shows that we have six cases to our credit where the defendant paid a fine or was

sent to jail or prison; that we have had two defeats, one of which was at the hands of a jury and the other by order of court. In addition to these results, Miller and Koskimaki left the state; Kirby closed his place of business; Mrs. Beach when the sheriff went over to arrest her had left. Twenty-eight other cases were investigated in various parts of the state, but prosecutions were not instituted for the reason that they either were not justified or the same result was accomplished without prosecution.

It is the intention of the board to see that every phase of the medical act and basic science law is fully enforced as it is their duty to so do under the law.

It has taken some time to organize the work and to have it handled in an efficient and dignified manner.

The board has not resorted to subterfuge in this work, but every case prosecuted has been a bona fide case of actual treatment at the hands of the defendant.

The board fully intends to continue this work in the same vigorous manner in the future and will continue to do so as long as complaints come in for violation of these two laws.

A. E. COMSTOCK, M.D.
Secretary.

ANGLO-AMERICAN DOCTORS IN EUROPE

With rare exceptions hotels in Europe refuse to give the address of American or English doctors, endeavoring always to have the hotel doctor employed, who they claim speaks English perfectly. When this doctor arrives, if he speaks English at all, it is usually so poorly that the patient does not fully understand him and he feels that the doctor has not fully understood what was said to him, and is consequently irritated and alarmed and his trouble aggravated.

To overcome this boycott, the "Continental Anglo-American Medical Society" was organized in 1885 and in 1889 commenced the publication of a list of the Anglo-American doctors practicing in Continental Europe and Northern Africa; and, wishing to establish the closest relations possible with their colleagues in America and England, will send a copy of this list, free of charge, to anyone applying to the Secretary, Dr. Sherwood-Dunn, 54 Bd. Victor Hugo, Nice, France.

LIVER TREATMENT IN SPRUE

From reports it appears that anemia of sprue in which there is a high color index and fewer than 2,000,000 erythrocytes can be expected to respond to the administration of Minot's liver fraction (Liver Extract No. 343, N. N. R.) with a shower of reticulocytes, unless the bone marrow is hypoplastic. Clinical cure, apparently, follows, but the type of pernicious anemia persists for at least two months after liver extract has been administered. A recent report of a case of sprue treated with Liver Extract No. 343, N. N. R., refers to a patient who was admitted to the hospital in a moribund condition and who has apparently recovered completely. (Jour. A. M. A., October 6, 1928, p. 1038.)

OBITUARY

Dr. Frederick G. Kohler

Frederick G. Kohler of Minneapolis, died Aug. 2, 1928, at Eitel Hospital, of heart disease, aged 52 years.

Dr. Kohler was born in Watertown, Minnesota, Jan. 17, 1876, where he received his early education, later attending High School and Stevens Seminary in Glencoe, Minnesota.

He was married in Glencoe in 1898 to Gertrude E. Deane, who, with three children, Gertrude, Gretchen and Geneva, survive him.

Dr. Kohler was graduated by the Medical Department of Hamline University in 1897, and thereafter practiced general medicine for twenty-five years. He first practiced in Forest City, and after three years removed to Stewart, Minnesota, where he remained until 1918. Dr. Kohler was among those who enlisted early in the World War, was commissioned a First Lieutenant and was stationed at Camp Custer, Battle Creek, Michigan. Following the war he went to Hector, Minnesota, where he practiced general medicine and began preparation for and devoted part time to specializing in eye, ear, nose and throat work. In 1925 he moved to Minneapolis and became associated with his brother, Dr. Geo. A. Kohler, with whom he remained until the time of his death.

Dr. Kohler was a member of the Hennepin County Medical Society and the affiliated State and American Medical Associations.

Dr. Everett Charles Hartley

Dr. Everett Charles Hartley died at his home in Carver, Minnesota, September 19, 1928, of heart disease.

Dr. Hartley was born at Picatonia, Illinois, August 24, 1855. He had practiced medicine at Carver for nearly fifty years. It may be truthfully said that the doctor was eminently successful in his chosen profession. In 1887 he was married to Miss Bertha Strache.

Dr. Hartley is survived by his widow and two sons, Dr. Everett Hartley of St. Paul and Scott R. Hartley of Los Angeles, California.

A memoir of Dr. Hartley in the Carver Journal-Review contains the following tribute: "We have lost a good friend, a fine citizen, a loyal neighbor a distinguished practitioner. His memory will live, for his good deeds were like the sands of the sea."

Dr. Robert M. Phelps

Dr. Robert M. Phelps, of St. Peter, Minnesota, died at the home of his daughter, Mrs. C. W. Cross, in Faribault, Oct. 22, 1928, after an illness of four days from a long standing chronic myocardial degeneration.

Dr. Phelps was born in Ripon, Wisconsin, May 15, 1858. His father was Able McEwan, and his mother, Pamela Church Brockway Phelps.

He attended Ripon College and was graduated therefrom in 1880. Entering Rush Medical College he was

graduated in 1887. He took a year's internship in a Chicago hospital and was licensed by the Minnesota Board of Medical Examiners the same year.

Dr. Phelps began his practice in Rochester, Minnesota and in 1890 was appointed assistant superintendent of the State Hospital for the Insane at Rochester. This position he held until 1912, when he was appointed superintendent of the State Hospital for Insane at St. Peter, succeeding the able Dr. H. A. Tomlinson. He held this superintendency until 1925, when because of failing health and strength he resigned and retired from active work, following which he made his home with his daughters at St. Peter and Faribault.

In 1893 he married Sarah V. Linton, M.D. She died from pulmonary tuberculosis in 1901. She bore him two daughters, who survive, Mrs. C. W. Cross of Faribault and Mrs. Floyd Johnson of St. Peter.

The doctor was interred beside his wife at Rochester, Oct. 25, 1928.

Dr. Phelps was for twenty-five years a member of the State Medical Association. For 16 years he had been a member of the Nicollet-Le Sueur Medical Society. He was also a member of the American Psychiatric Association.

Dr. Phelps was a kindly, courteous gentleman; always interested and active in the county society; considerate and helpful to his employees. He took a deep interest in the unfortunate insane that surrounded him through thirty-five years of his life. His life work was well done.

J. W. D.

Dr. Arthur A. Sweeney

Dr. Arthur A. Sweeney died at his home, 1525 Summit Avenue, Saint Paul, on the afternoon of Nov. 7, 1928, after a week's confinement from heart trouble.

Dr. Sweeney was born in 1858 in Lawrence, Massachusetts, and received his B.A. degree at Fordham College. He acquired his M.A. degree at Georgetown University and his M.D. degree at Harvard in 1886.

After six years of practice in Saint Paul Dr. Sweeney left for postgraduate work at Harvard and in France and England. Upon his return he specialized in psychiatry and neurology.

Dr. Sweeney acquired wide reputation in his chosen field. For more than thirty years he was professor of medical jurisprudence at the University of Minnesota and lectured each year to the graduating class.

Dr. Sweeney took an active part in the founding and development of the Saint Paul Institute, which had its beginning more than thirty-eight years ago. He had served as its president since 1921. He was also one of the founders, and at the time of his death was president of the Informal Club, which has played an important part in the social activities of Saint Paul.

Besides being a member of his county, state and national medical organization, Dr. Sweeney was an honorary member of the Minnesota Academy of Medicine, a member of the Minnesota Neurological Association and the Central Neuropsychiatric Association. He

was for years consulting neurologist to the Northern Pacific, Great Northern, Milwaukee and Northwestern railroads.

Dr. Sweeney is survived by his wife and daughter, Josephine.

Dr. William P. Lee

Dr. William P. Lee, for eighteen years a faithful physician in Northfield, Minnesota, died Thursday, Nov. 8, 1928, at Winthrop, Maine, where he had gone July 4 with Mrs. Lee and their son, Garry. His death was due to cancer. While he apparently had been failing in health for a longer period, Dr. Lee's family first knew of his condition early last May.

Dr. Lee was a native Minnesotan, born at Sleepy Eye in 1872. He grew up there and attended the local schools. After his graduation from the medical department of the University of Minnesota in 1894, he first practiced at Fairfax. Coming in 1910 to Northfield, he had practiced there until this summer, when he turned over his practice to Dr. Orrin Thorson while he went to Maine for what his friends hoped was but a temporary visit.

Two years after the family had come to Northfield, the first Mrs. Lee died. On November 7, 1914, Dr. Lee was married to Alice K. Wentworth, who survives him. There are also two sons, Phillips W. Lee, who is manual training instructor at Washburn high school, Minneapolis, and Garrison Lee, who is with his mother in the East; one daughter, Mrs. Cyril H. Davey (Ethelwyn), who lives in Minneapolis; two grandchildren; his mother, Mrs. Emma Lee, and a sister, Mrs. J. F. Knudson of Redwood Falls.

Dr. Lee was a member of the American Medical Society, and the various state and local professional societies. He was a Congregationalist and a Mason, and also affiliated with other lodges.

In addition to his extensive practice, Dr. Lee was interested in a number of community affairs in Northfield. He owned two farms in whose operation he was keenly interested.

During the war he was commissioned a captain in the medical corps, and for four months was stationed at Fort Riley, Kansas, on active duty.

Dr. Lee's was a radiant personality. He was always full of good cheer, always happy and amiable. His patients learned to know him as a friend, as well as a faithful physician, and for them he in turn gave everything he had.

Dr. Arthur H. Steen

A Minnesota country doctor, who administered to the sick for more than a half century, and whose early practice was among the Indians on Grey Cloud island, is dead.

Dr. Arthur H. Steen, Cottage Grove, was one of the last survivors of the old school of country doctors, whose

familiar figures were seen riding the trails on horseback before the day of the automobile. Dr. Steen died at his home Wednesday, Nov. 14, 1928, aged 78. Up to the last day he continued his practice in the same office he had occupied for the past 52 years.

For 54 years Dr. Steen practiced in Washington county.

When Dr. Steen came to Minnesota 54 years ago, St. Paul was a village of a few thousand inhabitants. In those early days, he often was called to administer to the Indians on Grey Cloud island, and was on friendly terms with the Chippewa and Sioux tribes.

Dr. Steen was known in the Twin Cities as an ardent supporter of the Minnesota state fair, and, during the time he practiced in Washington county, he attended 50 fairs, exhibiting products which he raised as a hobby.

Surviving him is his widow. Dr. Steen was born in Oakfield, Wis., and came to Washington county in 1874.

OF GENERAL INTEREST

Dr. P. B. Monroe has moved from Soudan, Minnesota, to Two Harbors, Minnesota.

Dr. J. C. Farrell of Arlington, Minnesota, has moved to Minneapolis and is now living at 3353 Park Avenue.

Dr. David E. McBroom, formerly of Faribault, Minnesota, is now associated with the medical staff for Colony for Epileptics at Cambridge, Minnesota.

Dr. J. A. Myers, Minneapolis, addressed the Illinois Tuberculosis and public Health Association at Centralia, Illinois, October 29, on the subject, "Diagnosis of Childhood Tuberculosis and Tuberculosis in Teen-Age."

The Saint Paul Clinic has leased the upper two floors previously occupied by the Ambassador restaurant on Fifth and Saint Peter Streets, Saint Paul. The Clinic will move from its present quarters in the Lowry Medical Arts Building upon completion of the necessary changes.

Dr. Brand A. Leopard disposed of his practice at New Richland, Minnesota, this last summer and is now taking a post graduate course in surgery at the University of Pennsylvania Post Graduate Medical School in Philadelphia. Dr. Leopard is living at Bywood, Pennsylvania, but has not established a practice there as was formerly announced.

Dr. John L. Haskins, who has maintained a practice in Northfield, Minnesota, for the past six years, became a member of the staff of the New York State Hospital at King's Park, New York, December 1. Dr. Haskins will be succeeded in Northfield by Dr. C. R. Wall, formerly associated with the Miller Clinic and Shrine hospital in Saint Paul.

NEW AND NON-OFFICIAL REMEDIES

The following articles have been accepted by the Council on Pharmacy and Chemistry:

ABBOTT LABORATORIES

Capsules Ephedrine Hydrochloride-Abbott, $\frac{3}{8}$ grain

LEDERLE ANTITOXIN LABORATORIES

Tablets Whole Ovary-Lederle, $2\frac{1}{2}$ grains

ELI LILLY & CO.

Antimeningococcic Serum Concentrated-Lilly

Antistreptococcic Serum, Purified and Concentrated (Lilly)

MALLINCKRODT CHEMICAL WORKS

Iso-Iodeikon

MERCK & CO., INC.

Optochin Base

Optochin Hydrochloride

H. K. MULFORD CO.

Mulford's Acidophilus Bacillus Blocks

Tetanus Antitoxin (Bovine)

PARKE, DAVIS & CO.

Capsules Ephedrine Sulphate-P. D. & Co., $\frac{3}{8}$ grain

Capsules Ovarian Substance, Desiccated-P. D. & Co., 5 grains

E. R. SQUIBB & SONS

Tablets Protargentum-Squibb, 4.6 grains

Tablets Solargentum-Squibb, 4.6 grains

SWAN-MYERS CO.

Syrup Ephedrine Hydrochloride (Double Strength)

Swan-Myers

NON-PROPRIETARY ARTICLES

Ethylhydrocupreine

Phentetiothalein Sodium

TRUTH ABOUT MEDICINES

Diphtheria Toxin-Antitoxin Mixture.—The antitoxin used in the toxin-antitoxin mixture (New and Non-official Remedies, 1928, p. 366) is produced from the horse, goat or sheep.

Diphtheria Toxin-Antitoxin Mixture (New Formula) (Sheep)-Squibb.—Each cubic centimeter represents 0.1 L+ dose of diphtheria toxin neutralized with the required amount of antitoxin obtained from the sheep. Marketed in packages of three ampules, each ampule containing 1 c.c. of the mixture; in vials containing, respectively, 10, 20 and 30 c.c.; and in packages of thirty 1 c.c. ampules. E. R. Squibb & Sons, New York.

Parathyroid Hormone-Squibb.—A stable aqueous solution containing the active principle or principles of the bovine parathyroid glands and having the property of relieving the symptoms of parathyroid tetany and of increasing the calcium content of the blood serum. It is standardized physiologically. Parathyroid Hormone-Squibb is claimed to be specific for normal or parathyroidectomized man when injected subcutaneously for increasing the level of the blood serum calcium. It is marketed in 5 c.c. vials. E. R. Squibb & Sons, New York.

A PAGE FORUM OF THE COMMITTEE ON PUBLIC HEALTH EDUCATION

Organization of County Public Health Workers' Council

The development of preventive work in medicine has on numerous occasions and in many places led to strife between members of the medical profession and public health workers. This was due in no small measure to the old conception of physicians that the prevention of disease was not part of their field. This view has been largely corrected and prevention is now considered of equal importance with the cure of the disease.

The coöperation of various agencies is the most essential element in the successful working out of a public health program. When the medical profession has been rightly approached, it has almost always given splendid support to public health work, although in rural communities it has been frequently handicapped by lack of men trained in preventive medicine. The new interest in preventive medicine on the part of medical schools and the increased post-graduate work, particularly in pediatrics, is gradually overcoming this lack of training. Each community presents special problems, depending on the character of its environment, the occupation of the inhabitants, its wealth, and its spirit.

In the hope that the experience in Olmsted County might be of help to other counties in the state, the Chairman of the Public Health Committee of the Minnesota State Medical Association has asked for a brief description of the development of the organization of the public health workers' council. Olmsted County is fortunate in having five organizations actively interested in preventive medicine. The city of Rochester supports the infant welfare nurse and the visiting nurse; the Rochester School Board two school nurses; Olmsted County the county nurse; and the Olmsted County Public Health Association a nurse who works largely in the county. The medical side of the infant and preschool clinics and the school examinations are carried on by a Fellow of the Mayo Foundation as part of his work toward obtaining an advanced degree in pediatrics in the Graduate School of the University of Minnesota.

The development in public health work occurred during the period between 1919 and 1927 and started as an outgrowth of Red Cross activities, the county taking over a nurse in 1920 and the city in 1922. The first school nurse was engaged by the School Board in 1922 and the second in 1926. The next addition was the nurse supported by the Olmsted County Public Health Association. For two years Sheppard-Towner help was received, but since January, 1927, the support has come entirely from the Association.

It was soon evident that if there was to be coördination and coöperation in the work, and it would be necessary for the workers to meet regularly for discussion of problems. In the past five years there have been monthly meetings at which each member was asked to report on his or her work, reports of national meetings have been given and there has been discussion as to ways and means of improving the local work. In addition to the five nurses and the pediatrician doing the active work, the meeting is attended by the City Health Officer, the field officer of the Child Welfare Board, a representative of the Social Service Department of the Mayo Clinic, and the Chairman of the Public Health Committee of the Olmsted County Medical Society, who acted as Chairman of the Council.

These monthly meetings have developed a spirit of mutual understanding of the different problems, which has done a great deal to further the work. There has developed a spirit of coöperation in the organizations represented by the workers which crystallized this fall in a meeting attended by an executive member of each one of the organizations represented. The Mayor of the city, a County Commissioner, the President of the Olmsted County Medical Society, the President of the School Board, the President of the Olmsted County Public Health Association, and a member of the Civic League met with the Council and listened to reports of the workers and unanimously voted to draw up a program of coöperation that would further to the utmost the public health work in the city of Rochester and Olmsted County.

H. F. HELMHOLZ, M.D.,
Rochester, Minnesota.

REPORTS AND ANNOUNCEMENTS OF SOCIETIES

MEDICAL PROFESSION OF WESTERN HEMISPHERE TO CONGRESS IN HAVANA

The next congress of the Pan-American Medical Association will be held in Havana, Cuba, from Dec. 29, 1928, to Jan. 3, 1929. The program, which is being arranged by the President, Dr. Fred H. Albee of New York City, will be a strong one, and will include four orations, upon the subjects of surgery, medicine, pediatrics, and tropical medicine.

Dr. William J. Mayo will give the Oration on Surgery, and Dr. Lewellys Barker of Johns Hopkins University the Oration on Medicine. Papers will be read in both Spanish and English.

This congress will be representative of the medical profession of the entire Western Hemisphere. Chapters of the Association have been and are being organized in various centers of North America and Central America, as well as in the Antilles, all of which will be represented at the Congress.

One of the recent accomplishments of the Pan-American Medical Association is the establishment of the Pan-American Hospital in New York City for the benefit of the Latin-speaking people.

A large attendance is solicited.

HENNEPIN AND RAMSEY COUNTY JOINT MEETING

The Hennepin and Ramsey County Medical Societies accepted the invitation of the U. S. Veterans Hospital No. 106 and held a joint meeting as guests of the hospital on the evening of November 5.

After a dutch-treat supper prepared by the hospital cuisine, the hospital was opened for inspection. The hospital has a capacity of some 557 beds and at present has over 500 patients. About half of these are suffering from tuberculosis and the psychiatric ward with a capacity of thirty-nine is filled. The per capita cost a day is \$4.50 and the monthly payroll amounts to about \$53,000. The medical staff numbers forty-nine, thirty-eight of whom are on a full-time schedule. The hospital is at the disposal of any who have had service connection with the army irrespective of the relation of the disability to service or financial status.

The following scientific program concluded the evening meeting:

| | |
|--|-------------------|
| Hospital Organization..... | Dr. H. B. FRALIC |
| Medical Officer in Charge | DR. C. W. HUGHES |
| Clinical Activities..... | Clinical Director |
| Medical Service: | |
| Angina Pectoris Associated with Myxedema | |
| Heart | DR. THOMAS ZISKIN |
| | Cardiologist |

A. Case Report of Hodgkin's Disease, Mediastinal DR. R. W. BRACE
Chief of Medical Service

Surgical Service:
A Case of Gastro-Colic Fistula, and
A Case of Total Gastrectomy under Local Anesthesia,
Chief of Surgical Service..... DR. F. R. SEDGLEY
Consulting Surgeon..... DR. S. R. MAXEINER

Tuberculosis Service:
Multiple Tuberculous Foci with Apparent Arrest,
and Cases Illustrating Collapse Therapy
..... DR. W. J. MARCLEY
Chief of Tuberculosis Service

Neuropsychiatric Service:
Neuropsychiatric Service in a General Hospital
..... DR. C. B. COVEY
Chief of Neuropsychiatric Service
Progressive Muscular Atrophy
Lateral Sclerosis..... DR. ALEX G. DUMAS
Neuropsychiatrist

LYON-LINCOLN COUNTY MEDICAL SOCIETY

At the annual meeting of the Lyon-Lincoln County Medical Society the following officers were elected for 1929: President, Dr. Ward Akester, Marshall; vice-president, Dr. E. Engh, Cottonwood; secretary-treasurer, Dr. H. M. Workman, Tracy. Dr. E. T. Sanderson of Minnesota was elected delegate to the State Association meeting and Dr. A. L. Vadheim, Tyler, alternate.

It was decided to hold another extension course beginning next April.

WRIGHT COUNTY MEDICAL SOCIETY

The Wright County Medical Society held its annual meeting at Buffalo, Minnesota, October 18, 1928. The following members were elected to office for the ensuing year: President, Dr. E. Klaveness, Monticello (re-elected); vice-president, Dr. George Norris, Annandale; secretary-treasurer, Dr. John J. Catlin, Buffalo.

WEST CENTRAL MINNESOTA MEDICAL SOCIETY

The West Central Minnesota Medical Society met at Morris, Minnesota, October 10, 1928.

Members of the society and their ladies were the guests of Drs. Ewing and Pierson at a seven o'clock dinner. Drs. C. B. Wright, E. A. Meyerding, J. A. Myers, Herman Johnson, and Arnold Anderson met with the society and talked on medical economics, after which a general discussion followed.

Dr. L. L. Gibbon of Lowry was elected president and Dr. H. Linde of Cyrus was elected secretary of the society for the coming year. The next meeting will be held at Morris, Minnesota, Jan. 9, 1929.

HERMAN LINDE, M.D.,
Secretary.

PROCEEDINGS OF THE MINNESOTA ACADEMY OF MEDICINE

Meeting of October 10, 1928.

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town & Country Club on Wednesday evening, October 10, 1928, at 8 o'clock. Dinner was served at 7 o'clock. There were 25 members present.

The meeting was called to order by the President, Dr. C. N. McCloud. Dr. McCloud reported that the Executive Committee, having charge of the revision of the Constitution and By-Laws, had had four meetings since the September evening meeting, and that a copy of the new Constitution had been sent to each member of the Academy. After some discussion a motion was carried that this new Constitution be proposed for adoption at the next meeting, with a few minor changes made at this time.

The scientific program of the evening was opened with the reading of the Thesis* of Dr. Owen Parker, of Ely, Minn., who had been elected to Associate Membership in the Academy. The title of Dr. Parker's Thesis was "Fractures of the Ankle Joint," and after the reading of the paper Dr. Parker showed a number of lantern slides.

DISCUSSION

DR. EMIL S. GEIST (Minneapolis): I am sure I voice the sentiments of the Society when I say that we welcome Dr. Parker, who is an old classmate of mine and of others in the Academy.

To come to the subject, these ankle fractures need careful attention. Fractures of the shaft of bones will heal and give the patient a good leg even if they are not in direct apposition. This does not hold good in fractures about the joints; especially about the ankle joint, which is a weight-bearing joint, and here exact apposition must be obtained. The slightest deviation from the normal is liable to give the patient trouble. And the time to do this is when the fracture is first treated. The orthopedic surgeon sees a great many old fractures of the ankle which give trouble and it is nearly always due to malalignment.

The subject is a large one and cannot be covered in one evening or in one paper. The simple fracture of the tip of the malleolus differs vastly from the severe comminuted and compound fractures that we so often see in industrial work.

I was beginning to think, when Dr. Parker showed his first group of slides, that life in the mining country was easy. The last pictures, however, showed some of the bad problems that one who is doing surgery of the bones has to deal with, and these are the ones that make one's hair white.

Dr. Parker's explanation of the different types of fractures is, of course, the standard one. In Cotton's fracture, there is much backward displacement of the astragalus and no surgeon can fail to realize that this unreduced will leave a bad, painful joint. It is usually

accompanied by a breaking off of a triangular piece of bone from the back and lower end of the tibia. Usually there is not so much backward displacement as in this case. These cases are often neglected. Some years ago I wrote a paper on "Old Fractures of the Ankle," and quite a group of them were of this type of fracture.

Another subject is the compound fracture. We have had in the last few months a few of these compound fractures in the ankle and have taken care of them according to Orr's method with much satisfaction. One of these I saw with Dr. Hynes.

The Doctor referred to the use of wire, and talked of using it somewhat under protest. That was my own feeling about wire until about a year ago. When abroad I brought back some Krupp wire; it is an iron wire of great tenacity and it lies quiet in the tissues. The trouble heretofore was that wire seemed to stimulate osteoclasia. We have used this Krupp wire in quite a number of cases and it is safe metal to use. There are very few metals which can be introduced near or into bone without causing trouble. Dr. Zierold some time ago did a very nice piece of work along this line. He found that copper stimulates bone growth; that all the alloys inhibit bone growth, and that pure gold and "stellite" lie quiescent. The former is too soft and the latter too brittle for use.

DR. JOHN E. HYNES (Minneapolis): The case which Dr. Geist mentions was one of compound fracture of the tibia through the internal malleolus with comminuted fracture of the fibula a short way above the external malleolus. Dust and plaster were ground into the wound. We reduced the fracture and drained by a stab wound and put it up in a tight case, liberally smearing vaseline over the entire leg. We then made a window through which inspection was possible, and have left it alone since.

I feel a certain hesitancy about shouting because I don't think that we are entirely out of the woods, as only two weeks have elapsed since the injury.

DR. ARNOLD SCHWYZER (St. Paul) reported a case of apoplexia mesenterica, or in other words "Acutely formed mesenteric blood cyst."

Mr. R. C., 68 years old, weighing 268 pounds, formerly a streetcar motorman, but doing no work for the last ten years on account of heart trouble, was referred to us on September 20, 1928. He gave the following history, which, when viewed a posteriori, is in exact harmony with and straightly points to the operative findings.

Two weeks ago, directly after a meal, he was seized with severe pain in his abdomen to the right of the navel, and had to hurry into the bathroom. His bowels moved and he vomited two or three times. After two defecations that day the bowels became regular again. No vomiting or nausea occurred after that one spell. The pain had been severe enough to make him yell. His family doctor was summoned in a hurry and a hypodermic injection of morphin relieved the agony. The pain was rather severe for three or four days. After this the abdomen remained sore, but this soreness gradually grew less. The treating physician thought

*Dr. Parker's paper will be published in the January issue of MINNESOTA MEDICINE.

an acute cholecystitis the most likely diagnosis. There was great tenderness in the area of the gallbladder. There was no marked rise in temperature. On the day after the attack, the doctor felt a resistance below the liver, and this became a distinct mass, getting larger and harder during the following days, while tenderness and pain decreased.

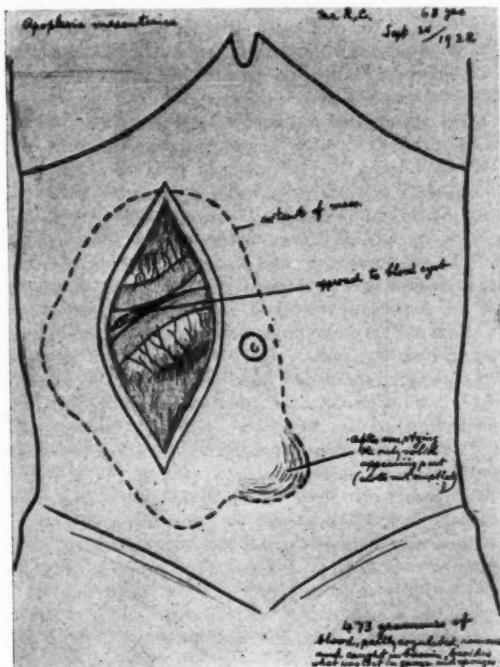
Our examination gave, in short, the following findings: The heart action was very irregular in rate and force. No murmurs were heard. The lungs were clear; no râles on the bases. In the abdomen a tumor was felt, which was moderately tender. It reached 5 cm. to the left of the navel and about 20 cm. to the right of it; 12 or 13 cm. above the navel and about 6 cm. below it. The liver dullness barely reached down to the border of the ribs, and there was a tympanitic

over the right rectus, the peritoneum being opened only in the upper two-thirds of the cut. Upon the mass, which, together with the adherent gut, was almost the size of a football, though not as deep, we found two small intestinal loops adherent. In fact, these two loops, which were entirely flattened out, with their mesenteries, the one over the upper part of the tumor and the other covering the lower half, completely concealed the mass from view. The tumor was dense and elastic. We tried to detach the intestinal loops; but the tumor did not have a firm capsule or outline, and either damage to the gut or falling into the tumor unawares seemed unavoidable. Therefore, after detaching and separating the two loops a very little, we inserted a needle for aspiration, and as this did not yield anything, we entered with a fine artery forceps. Only some old coagulated blood was found. The opening was gradually enlarged bluntly and more and more liquid old blood and coagula were delivered. It required entering with the finger into the very large cavity and breaking up of the coagula before they could be removed. The finger was moistened each time, before entering, with phenol-camphor to make sure of not contaminating this enormous bloody space. The cavity gradually collapsed and there seemed to be no distinct palpable walls to the cavity, which reached far into the right flank. The opening into the cavity remained just large enough for one finger; each time, after breaking up a new portion, it was gently squeezed out and caught in a spoon.

The question to decide was whether we were dealing with a simple mesenteric hematoma or a hemorrhage into a mesenteric cyst or a hemorrhage from a malignant neoplasm. After complete emptying, or at least as complete as seemed proper, the walls showed nowhere a thickening or irregularity to the inserted finger. From the outside through the adherent gut there was no resistance felt either, except a small rounded thickening projecting from the lower pole toward the left. It was smooth-walled and small. No irregularity had been felt from inside and it was, therefore, probably some clotted blood in a recess and not a neoplasm. But should it be such, nothing further was to be done anyway under the conditions.

Was it perhaps a hemorrhage into a pre-existing cyst? This also was not probable, because such an enormous cyst would very probably have given some symptoms even if only moderately filled. There remains the possibility of a hemorrhage into a walled-off peritoneal space near the root of the mesentery; but a localized peritonitic walled-off process away from the large gut is very rare. I have seen such a condition only once, when we had to deal with a broken-down walnut-sized lymph node. Thus one had to conclude that we had a hemorrhage from a mesenteric vessel into the mesenteric space between the two peritoneal linings, and apoplexia mesenterica.

I find in the literature, which seems meager, that blood cysts of the mesentery are drained after emptying. This we wanted to avoid. The wound had been handled with utmost care. The cavity was now completely collapsed; there was no trace of fresh oozing.



zone between the liver dullness and that of the tumor. The tumor was firm and smooth-walled as far as one could make out on the large abdomen. We made the diagnosis of either an omental or a retroperitoneal mass. The urine had good specific gravity (1023) and contained a trace of albumin, no sugar.

After preparing our patient with digitalis and after a cystoscopic examination had shown that carmin blue was secreted from the right kidney within four minutes, while the function of the left kidney was next to nothing, the patient was operated upon on September 24. We now knew that in case the tumor was connected with the right kidney, we were under no condition allowed to sacrifice this organ.

Under local anesthesia a seven-inch incision was made

The opening was left as it was; there was no sense in suturing. The abdomen was closed tight.

The post-operative course gave us considerable anxiety on account of the condition of the patient's heart, but today (October 10th) the patient is ready to go home and says he feels quite well. He has been out of bed and moving about for several days. The wound healed very well and the abdomen is soft and no masses are felt.

DR. F. W. SCHLUTZ (Minneapolis) reported two cases:

Case 1. Tracheo-Esophageal Fistula. The case concerns a male infant two days old. The antepartum diagnosis of the pregnancy was polyhydramnios. On account of a brow presentation, delivery was by version and extraction.

The infant cried vigorously at birth but showed some dyspnea and cyanosis. There was malformation of the right thumb. Labored respiration set in about 10 minutes after birth; cyanosis became very marked, and the use of oxygen relieved this somewhat. Attacks of cyanosis occurred about every 5 minutes at first, but later decreased in frequency. A pronounced stridor developed; more pronounced during inspiration. Oxygen had to be given almost continuously to maintain the infant's color. An x-ray plate of the chest showed the following findings:

"The thymus was moderately enlarged. There was marked displacement of the mediastinum and heart into the left chest. The heart appeared somewhat enlarged and the whole appearance suggested some abnormality in the relation of the heart to the thorax. A laryngoscopy revealed approximation of the false vocal chords during the attack of severe dyspnea."

Fluids given by mouth were regurgitated. An attempt was made to give water by gavage. The tube was arrested before it was thought to have entered the stomach and the water was returned almost immediately.

The temperature at the end of 24 hours rose steadily to 104°. At the end of 48 hours the respiration became shallow and slow.

Post-mortem examination revealed a tracheo-esophageal communication. The upper portion of the esophagus was pouched and ended blindly at the level of the tracheo-esophageal communication.

The esophagus below the communication was thick-walled but narrow. It was patent, and air was found in the stomach.

Examination of the cranium revealed a bilateral laceration of the tentorium. This may have partially explained the stridor.

Case 2. Cyst of the Liver. The case concerns an infant aged 11 months. Birth was normal at term. Feeding history to date is uneventful. One other child is living, is 4 years old and in good health.

The infant was brought to the General Hospital last August on account of unusual enlargement of the abdomen. No complaint of abdominal pain had been noticed. A diagnosis of cystic tumor of the abdomen

(not in the liver) was made. X-ray examination (fluoroscopy and plate) showed the entire colon pushed to the left. The right upper half and the left upper one-fourth of the abdomen was filled with a large opaque mass, the origin of which could not be made out.

The patient was referred to the University Hospital in September. At that time the general physical examination, except for pronounced enlargement of the abdomen, was negative. The abdomen was soft. No outline of a mass could be discerned. The liver edge was palpable below the left costal margin near the midline. Percussion revealed dullness over most of the right side of the abdomen. X-ray examination again showed the same picture as had been observed previously. The mass displaced the colon downward and to the left.

The possibility of cystic kidney or retroperitoneal cyst was considered. A cystogram was not taken because of an unsuccessful attempt at catheterization.

Exploratory operation was performed September 25. The surgeon's report read as follows:

"On opening the abdomen a large cyst was observed, so large that its limits could not be determined until it was punctured. The liver was practically absent. A small piece of liver tissue was present in the lower portion of the cyst. No liver tissue seemed to be present on the right side above the cyst. The left boundary of the cyst was formed by the left lobe of the liver and its wall was apparently fused with the peritoneum in the region of the ligament teres. The gallbladder, a rather elongated viscus, was present in the lower margin of the cyst wall. The portion of the liver to the right of the cyst appeared normal. No definite duct connecting with the other extrahepatic ducts was made out.

"Following drainage of the cyst, marsupialization was carried out, following excision of a good portion of the free border. Enucleation of the cyst wall was not attempted on account of the extensive dissection it would have required and the danger of extensive hemorrhage. After insertion of a drainage tube the cyst wall was sutured to the parietal peritoneum. The cyst fluid contained no bile pigment.

"On October 4 an x-ray examination of the abdomen was made after the cyst had been injected with an opaque fluid. The cyst had decreased in size, containing only about 1.5 c.c. of fluid. The liver shadow was small and the small intestine and the colon had expanded well into the right portion of the abdomen."

The general condition of the child was very good.

DISCUSSION

DR. SCHLUTZ: I have reported these two cases because both conditions, I believe, are very rare. In the pathological material at the University there are only two other specimens of tracheo-esophageal communication. I have not had an opportunity to search the literature very carefully, but Dr. Phelps, who has done this, tells me it is a very rare condition.

The cyst of the liver, I believe, is still more rare. I have never seen a case like it.

DR. A. SCHWYZER (St. Paul): These two cases are of unusual beauty and interest. The first case, the congenital fistula between the trachea and esophagus, is a rare kind of fistula. It is a very large opening. As a rule, these fistulae are small. The bifurcation of the trachea is the level where one finds diverticula of the esophagus. The ones communicating with the trachea are rare, and still more rare is a large opening like this. We have here a great malformation of the esophagus. There seems to be no real esophagus behind at the tracheo-esophageal communication. Therefore, it appears that all there was of the foregut at that level was taken up by the formation of the trachea.

The case of the cyst in the liver is of unusual size. Cysts of the liver we see very rarely. I have seen two cases in my life; one was in an adult, an echinococcus cyst; the other case was congenital. We had there, not only both kidneys full of cysts, but we had small cysts on the spleen and on the liver. The size of this cyst of Dr. Schlutz's is surely very unusual.

As to treatment, it seems to me it was wise not to do more. These cysts will shrivel and after a while the capsule becomes hard and firm and the epithelial lining will become exfoliated or can then be cauterized away.

DR. THOS. S. ROBERTS (Minneapolis): This specimen (the tracheo-esophageal fistula) bears a curious resemblance to a condition which is normal in some birds. The Emu, for example, has a slit-like opening in the mid-trachea almost exactly like this fistula, but instead of opening into the esophagus it connects with a sac in the neck which can be distended and adds volume and resonance to the bird's voice. Birds as a class have an enormous and complicated system of air cells in the body, or other parts of the respiratory tract. They function chiefly in connection with the respiration but in many species there are special adaptations which have to do with the voice or sexual display. The bare neck-pouches of the common prairie chicken are familiar examples. The tracheal and bronchial rings are variously sacrificed to secure the necessary connections and certain of these normal openings are called to mind by the vertical slit-like fistula seen in this specimen. An eminent comparative anatomist has said that there is no anatomical anomaly found in the human body that does not exist as a normal condition somewhere farther down in the vertebrate line.

The meeting adjourned.

CARL B. DRAKE, M.D.
Secretary.

Diphtheria Toxin-Antitoxin Mixture 0.1 L+ (Non-sensitizing).—Each c.c. constitutes a single dose of diphtheria toxin neutralized with the proper amount of antitoxin produced from goats (New and Non-official Remedies, 1928, p. 366, and THE JOURNAL, October 13, 1928, p. 1109). It is marketed in packages of three vials, each containing 1 c.c.; in packages of one vial containing 10 c.c.; and in packages of one vial containing 30 c.c. United States Standard Products Co., Woodward, Wis. (Jour. A. M. A., October 20, 1928, p. 1193).

PROGRESS

Abstracts to be submitted to Section Supervisors.

Members are urged to abstract valuable articles which they run across in their reading and send the abstracts to the physicians in charge of the respective sections. In order to avoid duplication it would be well to communicate with one of the section supervisors before the article is abstracted.

GYNECOLOGY AND OBSTETRICS

SUPERVISORS:

ARCHIBALD L. McDONALD,
LYCEUM BLDG., DULUTH

L. W. BARRY,
LOWRY BLDG., ST. PAUL

VARICOCELE: Meredith F. Campbell, M.D., New York City (Surg., Gyn. & Obst., 1928, XLVII, 558-565). From a study of 500 cases, the author recognizes two types of varicocele: (a) spontaneous, idiopathic or primary and (b) secondary.

The secondary type results from pressure on the spermatic vein by intra-abdominal tumors, most often of the kidney and occasionally by tumors in the pelvis.

The spontaneous type is most often seen. In this series, 9 of every 10 were between 15 and 35 years of age, during the period of the greatest sexual potentiality. Ninety per cent were on the left side. The cause of the majority being on the left is probably due to incompetent valves in the left spermatic vein rather than due to the vein being of greater length on this side. Actual measurement showed the left spermatic vein to be normally but 1.5 to 2.5 cm. longer than the right.

The etiology is not clear but is usually associated with faulty sex hygiene. Nearly all were examined and most cases left alone cleared up after marriage. The underlying factor is chronic passive congestion of the genital organs.

In the early cases, there are found dilated tortuous veins, while in the latter connective tissue hyperplasia, endophlebitis and fatty atrophy occur. An associated periphebitis and neuritis may account for the testicular pain and atrophy. The symptoms are often those of sexual neurasthenia and a dragging sensation in the testicle. A thickened epididymis was a common associated finding.

Varicocelectomy is performed too often for this condition, as most varicoceles disappear after marriage and advancing age. Many of these patients are sexual neurasthenics and operation will not always relieve the patient of symptoms. Also severe complications may result from varicocelectomy such as hemorrhage, epididymitis, hydrocele and testicular atrophy.

Clinically, three types of varicocele occur: (a)

asymptomatic, which is best left alone whether large or small, (b) those cases which cause pain and which are benefited by operation, and (c) those which are small and may be the underlying cause of a sexual psychosis. Operation is advised only if sexual hygiene is hopeless.

The operation performed is that devised by Vincent. Following novocaine infiltration a low hernia incision is made exposing the external ring and spermatic cord. The vessels are exposed by incising the cremaster. A sufficient portion of the veins are excised so that the lower cut end when raised to the level of the external ring will elevate the testicle 2 cm. higher than it would usually hang. The upper cut end retracts into the inguinal canal. The suture on the lower cut end is left long and is passed underneath the external oblique by means of a director to a point opposite the internal ring, where it is anchored to the fascia of the external oblique. The testicle should be elevated about 3 cm. higher than normal. The wound is closed without drainage. This method uniformly relieves the pain and dragging sensation which are the common symptoms.

J. A. MAY, M.D.

ACUTE THYROIDITIS: E. C. Burhans, B.S., M.D., Philadelphia, Penn. (Surg., Gynec. and Obst., 1928, XLVII, 478-487). The author briefly reviewed the literature concerning the incidence of thyroiditis and found over 200 cases. His own case occurred in a diabetic female of 77 years who subsequently died of complications immediately associated with her condition.

From an anatomical standpoint the thyroid is well protected from external injury and infection. It has an exceedingly rich blood and lymphatic supply. The physiological changes which occur in the gland have a definite relation to infection. Pregnancy, acute infections, puberty, as well as the presence of adenomata are contributory factors in infections of the thyroid. Pathologically, thyroiditis consists of the acute or chronic, suppurative or non-suppurative types. The infection may be miliary in character or it may be localized to one large pus pocket. Tuberculous and syphilitic thyroiditis are the principal forms of specific non-suppurative thyroiditis but both may become secondarily infected and thereby become suppurative.

Clinically, thyroiditis occurs more frequently in females, with the greatest age incidence between 20 and 40 years. Trauma and infection are the principal etiological agents. The portals of entry for infection are through a persistent thyroglossal duct, direct invasion from surrounding tissues, lymphatic metastases and blood stream metastases. The outstanding symptoms are pain, swelling, tenderness, chills and fever, and sometimes coughing, hoarseness, dyspnea, dysphagia, and thyrotoxicosis. From the standpoint of differential diagnosis, hemorrhage, malignancy, glossitis with abscess formation at base of tongue, thyroglossal and bronchial cysts, cellulitis, and phlegmon of the neck must be considered. Conservative treatment is

indicated in the non-suppurative varieties, whereas surgery is necessary in the suppurative type.

H. R. FEHLAND, M.D.

PEDIATRICS

SUPERVISORS:

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TREATMENT OF FUSOSPIRILLARY INFECTIONS OF THE MOUTH IN CHILDREN. Harold K. Faber, M.D. (Amer. Jour. of Dis. of Children, September, 1928). The author's unsatisfactory experience with various local methods of treatment of Plaut-Vincent infections of the mouth, particularly ulcerative gingivitis, has led him to employ, as a matter of routine, the intramuscular administration of sulpharsphenamine. The effectiveness of arsphenamine therapy in fusospirillary infection was demonstrated in 1919 by Ehrlich. In the same year, Gerber showed by a careful study that after the administration of arsphenamine the spirochetes in actual lesions of the mouth lost their motility within twenty-four hours and disappeared shortly, while those on normal mucous surfaces were unaffected.

With one or two exceptions, only one dose has been given. The dosage now employed is approximately 15 mg. of sulpharsphenamine per kilogram of body weight. The author does not believe local administration or arsphenamine to be necessary or advantageous, since with full intramuscular doses the beneficial effects appear to be obtained with maximum rapidity.

Often the lesions appear unchanged after one or even two days and will suddenly, on the third or fourth day, appear almost healed.

R. N. ANDREWS, M.D.

THE USE OF DEXTROSE INTRAPERITONEALLY IN INFANTS AND IN YOUNG CHILDREN. Clifford G. Grulée, M.D., and Heyworth N. Sanford, M.D. (Amer. Jour. of Disease of Children, September, 1928). For many years dextrose has been recognized as a carbohydrate which, when given orally or parenterally, is readily available for the purpose of combustion within the body. For the administration of dextrose subcutaneously, intravenously or intraperitoneally, an isotonic solution is, in most cases, desirable.

In 1919, Marriott advocated the use of dextrose intraperitoneally in the treatment of athreptic infants. Mitchell, in 1922, summing up the value of intraperitoneal injections in infancy, says of dextrose: "In the light of our present knowledge it is better to introduce glucose or sodium bicarbonate intravenously if their use is so urgently indicated that the giving of these substances by mouth will not suffice. In 1922, Williams and Swett found that solutions of dextrose rapidly be-

come acid on autoclaving and that the toxic action is due to this acidity.

Three hours after sterilization of the solution of dextrose, reactions would develop following injection. These varied from simple distention to severe shock when specimens that had stood a longer time were used.

Buffering the solution was successful in a majority of cases, but as in a few cases nausea developed, it was decided to overcome the tendency to acid formation in another way. This was done by autoclaving the dextrose dry and then by adding sterilized water to it. There were no effects of any kind in the dogs injected intraperitoneally with the solution in this manner.

From the authors' experience we feel that 5 per cent dextrose solution given intraperitoneally may prove a valuable therapeutic measure in a variety of conditions provided that the dextrose is sterilized in the dry state and the solution made up immediately before using.

We also feel that this method of preparation if properly and carefully carried out insures against shock following the administration of dextrose.

R. N. ANDREWS, M.D.

BLOOD IN THE STOOLS OF THE NEW-BORN.
Barnet E. Bonar, M.D. (Amer. Jour. of Diseases of Children, 1928, 36, 725). The benzidine test for occult blood was found positive in 29.38 per cent of 1,518 stools of 109 new-born. Occult blood is found too frequently in the stools of the new-born to ascribe its cause to the usual sources. Neither should it be considered physiologic.

The period during which the transitional stools are passed is a time when bacteria may be found in increasing numbers in the stools. It is entirely probable that the very presence of the transitional stool with its greenish-brown, slimy appearance is indicative of irritability of the bowel or of transitional catarrh. The most likely sources of this irritation are: by ingested food or its products of digestion, by the initial bacterial invasion or by both. A bowel unused to food, as the bowel of the newly born infant, might easily become irritated during digestion of the first foodstuffs, especially of sugar. Added to this, the possibility of irritation caused by the invasion of the alimentary tract with bacteria for the first time would well explain the irritation produced. It is a known fact that the gastro-intestinal tract of the baby is sterile at birth, but that within a relatively short time after birth bacteria gain entrance by way of the mouth and rectum.

A parallel to this is seen in the transitional catarrh of the vulva and vagina occurring on the second day, due to bacterial invasion. Furthermore during the first five days of life, there is a prolongation of coagulation and bleeding times. Such a tendency to bleed in the presence of hyperemia makes extravasation of blood a likely possibility.

More attention should be given the so-called initial diarrhea of the new-born, which appears to be another manifestation of the irritability of the bowel which occurs in the early days of life.

R. N. ANDREWS, M.D.

EYE, EAR, NOSE AND THROAT

SUPERVISORS:

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ARTHUR C. DEAN

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OCULAR INVOLVEMENT IN SINUS DISEASE: E. S. Thomson (Laryngoscope, 1928, XXXVIII, 439, 521). The nature of sinus disease causing eye involvement is probably due to an element of mechanical pressure at first and later to extension by the blood and lymph stream. The advisability of surgical procedure must be determined by the clinical picture in the eye. In certain cases the operation is in the nature of an exploratory one. With modern technic the dangers of a correctly done sinus operation are not sufficient to justify a temporizing course where the integrity of the eye is endangered. The closest coöperation is essential between the ophthalmologist and a rhinologist of proved technical ability to secure the best results. In the majority of cases, if treatment can be promptly instituted, the results of operation are excellent—in many cases remarkable. Even in late cases, where a reasonably positive diagnosis can be made, operation should be done, as the results are surprisingly good.

Iritis and cyclitis often occur as the result of latent sinus infection. Numerous cases have been reported where an exenteration of the ethmoids cleared up the eye condition.

Two distinct types of choroidal reaction occur as result of sinus infection. One is the type in which dust-like opacities in the vitreous occur, coming on suddenly and running a chronic course. Choroidal exudation cannot be made out at first but comes later. The other type begins with plastic exudations in the choroid and often goes on to dense vitreous clouding and serious intraocular changes. This latter type is always monocular.

The optic nerve may be the seat of plastic inflammation as the result of sinus disease, either singly or accompanied by lesions of the retina or choroid. A retro-bulbar neuritis of low degree may also obtain. A pure papilledema does not occur as the result of sinus disease.

Frontal sinus infection alone does not commonly affect the eye. Infections of the ethmoids give uveal disturbances, iritis, choroiditis and less commonly retinitis.

Primary sphenoiditis gives a neuritis, retro-bulbar in type, or the peculiar functional depression of unknown pathology.

Antrum infections are probably more definitely focal in character and as a rule less serious than other types. These ocular conditions due to sinus infection often stop short when sinus operation is done.

ARTHUR C. DEAN, M.D.

ROENTGENOLOGY

SUPERVISORS:
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MPLS. GEN'L HOSPITAL, MINNEAPOLIS
A. U. DESJARDINS,
MAYO CLINIC, ROCHESTER

RADIOLOGICAL OR SURGICAL TREATMENT OF CANCER OF THE UTERUS. Heyman, J. (Strahlentherapie, 1928, 29, 407). Selected statistics from nineteen leading surgical and thirteen radiological clinics are presented in this article in an attempt to arrive at definite conclusions concerning the superiority of operative or radiological treatment of cancer of the uterus. These statistics are based on five-year cures, and due to the differences in clinical material, absolute results are used only, *i.e.*, the end-results compared to the total number of cases seeking treatment.

In cancer of the cervix uteri, the maximum average percentage of cures from operation amounts to 20.2. At Radiumhemmet, in about 500 cases treated primarily with radiation and 41 cases not treated, the minimum percentage of cures was 20.7. The factor of operability of the admitted cases, however, should also be taken into account. In two-thirds of the surgical clinics, an operability of 59 per cent was reported, while at the Radiumhemmet an operability of 26.6 per cent was reported. Comparing the cures to the number of operable cases, the operative cures are equal to 36.6 per cent as an average, while the cures at Radiumhemmet average up to 44.4 per cent.

The author also points out the fact that, while surgery

has about reached its highest point of perfection, the radiological treatment at the time these figures were collected was just in its infancy, and should develop greatly in the future.

The cases of cancer of the corpus uteri are too few to permit accurate deductions. Comparing the 46 cases of the Radium home, however, with those collected from the surgical clinics, the results are found to be nearly equal, with the advantage being on the side of radiological treatment.

H. HILLSTROM, M.D.

THE VALUE OF ROENTGEN DIAGNOSTICS IN CANCER COLI: A Renander (Acta Radiologica, 1928, XII, 213). The author collected sixty-three cases which were examined roentgenologically and in which a diagnosis of carcinoma of the colon was made or in which carcinoma was found at operation. A comparison with the clinical findings indicates that a positive diagnosis of the presence of organic pathology in the colon was made correctly in 86 per cent of the cases by the roentgen method and in 56 per cent by other clinical methods. In the operable cases the roentgen diagnosis was correct in 91 per cent of the cases while the clinical diagnosis was correct in 48 per cent of the cases. In some of the advanced inoperable cases the clinical diagnoses were more frequently correct than the roentgen diagnoses. The clinical and roentgen methods supplementing each other produced a definite correct diagnosis in sixty-one of the sixty-three cases considered. The roentgen examination gives the greatest assistance in operable tumors of the sigmoid and transverse colon and the cecum.

LEO G. RIGLER, M.D.

BOOK REVIEWS

Books listed here become the property of the Ramsey and Hennepin County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

BOOKS RECEIVED FOR REVIEW

UROLOGY. Edward L. Keyes, M.D., Ph.D., F.A.C.S., professor of Urology, Cornell University School of Medicine. 763 pages. Illus. New York: D. Appleton & Company, 1928.

THE TREATMENT OF DIABETES MELLITUS. Elliott P. Joslin, M.D. (Harvard), M.A. (Yale); Clinical Professor of Medicine, Harvard Medical School; consulting physician Boston City Hospital; physician to New England Deaconess Hospital. Fourth Edition, enlarged, revised and rewritten. Illustrated. Price, \$9. Philadelphia: Lea & Febiger, 1928.

This well known classic on diabetes mellitus has been rewritten, much omitted and replaced, and material added. The author stresses as the outstanding features of diabetes of today the prolongation of the lives of diabetic children and the replacement of coma by arteriosclerosis as a cause of death. Next in importance are: (a) statistically, the increasing incidence of diabetes among women; (b) physiologically, the influence of insulin, first, upon the storage of glycogen in the muscles as well as in the liver, and second, its probable regulation of the catabolism of protein and fat and the formation of sugar therefrom; (c) pathologically, the involvement of the whole pancreas in the diabetic process; (d) therapeutically, the continued efficacy of insulin despite long use, its adequacy in emergencies, surgical and otherwise, and the possibility of new medical aids in treatment.

The author believes the chief cause of the premature development of arteriosclerosis in diabetes, save for advancing age, is an excess of fat in the body (obesity), in the diet, and in the blood, and that every dose of insulin given the patient defers the advent of arteriosclerosis.

The book is stimulating, shows the drift of diabetic thought and gives the physician tremendous aid in knowing what hurts and what aids the diabetic patient.

C. A. MCKINLAY, M.D.

WHY WE MISBEHAVE. Samuel D. Schmalhausen. 313 pages. \$3.00. New York: The Macaulay Co., 1928.

The dedication of this book gives a true idea of its character. It is dedicated to "Sigmund Freud, Alfred Adler, Carl Jung, three philosophic physicians who created The New Medicine, The New Psychology and The New Education, pioneers in the science and art of Re-education." In spite of the complimentary introduction by William A. White, renowned psychologist, from St. Elizabeth's Hospital, Washington, D. C., it will

prove to be a disappointment to the average reader. It emphasizes sex as the only important thing in the world and considers such men as Bertrand Russel and Judge Ben Lindsay as great public benefactors.

If something be wrong with modern marriage or modern morality, such teaching as this will contribute nothing, but will add much to the general confusion. This book will bring nothing of interest to any reader. If this be, as suggested, because one be "such a hide-bound conservative as to have lost all capacity for the consideration, understanding and assimilation of ideas that were not originally instilled in his mental constitution" the answer is that nothing is to be gained by the education.

MARGARET WARWICK, M.D.

A TEXT-BOOK OF GENERAL BACTERIOLOGY. Edwin O. Jordan, Ph.D., Professor of Bacteriology in the University of Chicago and Rush Medical College. Ninth edition, thoroughly revised. 778 pages. Price, \$6.00. Philadelphia and London: W. B. Saunders Company, 1928.

Numerous advances in the science of bacteriology have made the new edition necessary. Recent advances in the study of the cause of scarlet fever and the immunity reactions are touched upon. The same may be said of diphtheria. Tularemia is briefly treated.

The book gives the usual classification of pathogenic bacteria, culture methods and the general routine study of bacteria and is mainly intended for a student's text-book.

It is more than a text-book of bacteriology and includes chapters on pathogenic protozoa, spirilla, pathogenic fungi, the bacteria of milk and milk products, bacteria of the nitrogen cycle, bacteria of the arts and industries, and of the air, soil and water.

A chapter unusual in clinical bacteriological texts treats of the bacterial diseases of plants.

FLOYD GRAVE, M.D.

POLIOMYELITIS, With Especial Reference to Treatment. W. Russell MacAusland, M.D., Surgeon-in-Chief, Orthopedic Department, Carney Hospital, Boston, Massachusetts. 173 Engravings. Cloth. 402 pp. \$5.50. Philadelphia: Lea & Febiger, 1927.

The orthopedist has often been accused of being a manipulating mechanic without a thorough knowledge of underlying physiology. Much of recent orthopedic literature can disprove this statement but none perhaps as well as W. Russell MacAusland's "Poliomyelitis." A book is best judged by what it teaches. This book teaches all of us, from general practitioner to specialist. The collection of known facts is admirably done and the subject is presented in all its phases. The proper treatment of the early stage is stressed, a point well worth the close attention of the general practitioner who sees these cases most frequently.

The surgical treatment is so well given that it forms an admirable compendium for the specialist and the various indications are so elucidated that the general

man will be greatly aided in his diagnosis and judgment as to the time of instituting operative procedure.

E. T. EVANS, M.D.

STORY OF ELECTRICITY: AND A CHRONOLOGY OF ELECTRICITY AND ELECTROTHERAPEUTICS. Herman Goodman, B.S., M.D. With an introduction by Victor Robinson, M.D. 62 pages. Price, \$1.50. New York: Medical Life Press, 1928. Dr. Goodman gives us a review of the history of

electricity, by discussing one after another the pioneers who marked the progress of this science during the last two centuries. He tells his story as an interwoven and interlocking entity, tracing the development from the early days to the most recent speculations. He deftly brings out the dependence which the work of each scientist has on that of his predecessors, and how it lays the foundations for the great electrical advances of the present age.

WALTER H. UDE, M.D.

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